Expert Report of

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DAKOTA NELSON; BELINDA BIAFORE, individually and as Chairperson of the West Virginia Democratic Party; ELAINE A. HARRIS, individually and as Chairperson of the Kanawha County Democratic Executive Committee; WEST VIRGINIA DEMOCRATIC PARTY; and WEST VIRGINIA DEMOCRATIC HOUSE LEGISLATIVE COMMITTEE,
Plaintiffs, v. Civil Action No. 3:19-cv-00898 MAC WARNER in his official capacity as WEST VIRGINIA SECRETARY OF STATE and VERA MCCORMICK, in her official capacity as CLERK OF KANAWHA COUNTY, WEST VIRGINIA, Defendants. UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA HUNTINGTON DIVISION

Introduction and Summary

1.   I have been retained by counsel for Plaintiffs in the above-captioned litigation, who

have asked me to provide my analysis and opinions regarding the likely impact (or lack thereof) that

West Virginia's "ballot order" statute has on vote shares in West Virginia elections, based on the

extensive literature regarding primacy effect in elections. The statute mandates that major party

candidates be listed in order based on the number of votes that their party received in the last

presidential election.

2.   As I discuss in this report, I conclude that:

- Listing a candidate's name first on the ballot almost always accords that person an advantage in gaining votes, called a "primacy effect."

- Candidate name order effects have been studied extensively in different electoral settings for many decades, and the body of accumulated evidence is especially compelling and consistent with the conclusion that candidates listed first on a ballot have an electoral advantage solely as a result of their position on the ballot.

- Name order effects appear to occur among some voters because they lack information about candidates and among other voters because they feel ambivalent toward the candidates. Listing a candidate's name first "nudges" these two types of voters toward voting for the person.

- Because primacy effects have been found virtually everywhere that candidate name order effects have been studied, it is extremely likely that primacy effects have occurred and will occur in West Virginia.

3.   This report is organized as follows. I begin by describing my qualifications. Then, I

discuss how research can and should be done to evaluate whether candidate name order influences

voter behavior, and I review the results of studies conducted during the last 70 years, testing whether

the order of names on a ballot influenced election outcomes in America and abroad. This body of

research has yielded overwhelming evidence that primacy effects have occurred in nearly all of the

thousands of elections that have been studied in the past. The consistency of this evidence provides a

strong basis to expect that West Virginia voters have been manifesting and will manifest primacy

effects as well.

4.   I then review other related evidence showing that primacy effects with visually presented stimuli are not only overwhelmingly common in elections but also are very common in answers to survey questions and in other choice situations in life. In fact, primacy effects are so prevalent that it would be surprising if they did <u>not</u> appear in West Virginia elections.

5.   Next, I offer a two-pronged theory of why name order effects occur in elections, and I describe the implications of this theory for when name order effects are likely to be strongest. I then review findings testing those predictions, which have been consistently supported by existing work.

6.   Next, I report statistics showing the similarity of voters in West Virginia to voters in other states where primacy effects have been observed. And I report evidence from a new analysis of voting in West Virginia showing that statistically significant primacy effects have been occurring.

7.   Finally, I discuss possible remedies that could be implemented in West Virginia to eliminate advantages gained by candidates listed first on ballots.

8.   I am being compensated for my time in preparing this report at my usual hourly rate of $1,000. My compensation is in no way contingent on the conclusions reached as a result of my analysis.

I. Expert Qualifications

9.   I am the Frederic O. Glover Professor of Humanities and Social Sciences and a Professor of Communication, Political Science, and (by courtesy) Psychology at Stanford University in Stanford, California, a Research Psychologist at the U.S. Census Bureau, and a Research Advisor of the Gallup Organization. From 1986 to 2004, I was a member of the faculties in Psychology and Political Science at The Ohio State University. My position there involved teaching classroom courses for undergraduates and graduate students, as well as one-on-one training of graduate students in research methods. Since 2004, I have done similar work at Stanford University. I received an A.B. degree in psychology from Harvard University and M.A. and Ph.D. degrees in social psychology from

the University of Michigan. As a part of my undergraduate and graduate studies, I received extensive training in social psychology, survey and experimental research techniques, statistical data analysis, and political science.

10.   I have authored or co-authored eight published books and two forthcoming, more than 190 articles published in press, in journals or edited books, over 250 research presentations at professional conferences, and more than 250 invited addresses at universities and to government agencies, businesses, and in other settings. My journal articles have been selected by editors for reprinting in edited books more than 15 times and have appeared in top-ranked journals in social psychology (*Journal of Personality and Social Psychology*, *Journal of Experimental Social Psychology*), political science (*American Political Science Review*, *American Journal of Political Science*), survey research methods (*Public Opinion Quarterly*), and sociology (*American Sociological Review*, *American Journal of Sociology*).

11.   Much of my research has focused on political psychology and especially on public opinion about political issues, voting, and elections. In particular, I have conducted and published research on candidate name order effects in elections for 25 years.[1] I have testified as an expert witness regarding name order in four prior cases[2] and before the state legislature in Nevada on the issue.

12.   My research has been recognized by the Erik H. Erikson Early Career Award, by election as a Fellow of the American Academy of Arts and Sciences, by election as a Fellow of the

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[1] Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly*, *62*, 291-330; Krosnick, J. A., Miller, J. M., & Tichy, M. P. (2004). An unrecognized need for ballot reform: Effects of candidate name order. In A. N. Crigler, M. R. Just, and E. J. McCaffery (Eds.), *Rethinking the vote: The politics and prospects of American election reform*. New York, NY: Oxford University Press; Chen, E., Simonovits, G., Krosnick, J. A., & Pasek, J. (2014). The impact of candidate name order on election outcomes in North Dakota. *Electoral Studies*, *35*, 115-122; Pasek, J., Schneider, D., Krosnick, J. A., Tahk, A., & Ophir, E. (2014). Prevalence and moderators of the candidate name-order effect: Evidence from all statewide general elections in California. *Public Opinion Quarterly*, *78*, 416-439; Kim, N., Krosnick, J. A., & Casasanto, D. (2015). Moderators of candidate name order effects in elections: An experiment. *Political Psychology*, *36*, 525-542.

[2] *In re: Election of November 6, 1990 for the Office of Attorney General of Ohio*, 58 Ohio St. 3d 103 (Ohio 1991) (written report and oral deposition); *Bradley v. Perrodin,* No. TS 004519 (Cal. Super. Ct. L.A. 2002) (oral testimony during the trial); *Akins, et al. v. Secretary of State*, No. 04-E-360 (N.H. Super. Ct. 2004) (written report and oral testimony during the trial); *Giles v. Barbour,* No. 3:06cv572 HTW-LRA (S.D. Miss. 2006) (written report and oral testimony); *Jacobson v. Lee*, No. 4:18-cv-00262-MW-CAS (N.D. Fla. 2019) (written report and oral testimony). A list of the cases in which I have testified as an expert during the last four years is set forth herein.

American Association for the Advancement of Science, by two fellowships at the Center for Advanced Study in the Behavioral Sciences, and by election as a Fellow by the American Psychological Association, the American Psychological Society, and the Society for Personality and Social Psychology. I was awarded the Nevitt Sanford Award from the International Society of Political Psychology. I was awarded the lifetime career achievement award from the American Association for Public Opinion Research, the world's leading professional organization of survey researchers. And in a 2019 analysis of citations of the work of political scientists, I rank 14th in the field in terms of the total number of times my work has been cited in publications (34,143 citations) and rank 2nd in the field in terms of the number of citations per year post-Ph.D.[3]

13.   I have also served on the editorial board of the most prestigious journals in social psychology (*Journal of Personality and Social Psychology*) and in survey research methods (*Public Opinion Quarterly*). I regularly serve as a reviewer for other journals, publishers, and professional organizations. I have received more than 100 grants to support my research. I have served on the Boards of Overseers of the General Social Survey and the American National Election Studies and was co-Principal Investigator of the American National Election Studies, which are the nation's leading academic survey research projects studying public opinion and behaviors. I have been teaching research methodology since the early 1980s and have been invited to lecture and teach courses on research methodology to the research staffs of federal agencies in Washington, D.C. and at many professional organizations and universities around the U.S., as well as in the United Kingdom, the Netherlands, South Africa, Canada, and elsewhere.

II. Data Sources and Methodology

14.   To complete my assignment in this case, I reviewed my own research on the impact of name order, as well as published research by other scholars spanning the last 70 years, as cited

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[3] Kim. H. J., & Grofman, B. (2019). The Political Science 400: With Citation Counts by Cohort, Gender, and Subfield. *PS*, 1-16. https://www.cambridge.org/core/journals/ps-political-science-and-politics/article/political-science-400-with-citation-counts-by-cohort-gender-and-subfield/C1EDBF7220760F01A5C4A685DB3B3F44

throughout this report. I also used data from the website of the West Virginia Secretary of State and

from official state publications.

III. Methods for Testing for Name Order Effects in Elections

15.   In 1910, Woodrow Wilson asserted that:

> "I have seen a ballot ... which contained seven hundred names. It was bigger than a page of newspaper and was printed in close columns as a newspaper would be. … Of course[,] no voter who is not a trained politician, ... who does not know a great deal about the derivation and character and association of every nominee it contains, can vote a ticket like that with intelligence. In nine out of ten…, he will simply mark the first name under each office, and the candidates whose names come highest in the ... order will be elected."[4]

16.   Over the years since Mr. Wilson offered this speculation, scientists have tested its

validity in many studies using two principal scientific methods, which I describe next.

A. Random or Quasi-Random Assignment of Voters to Name Orders

17.   One method for gauging the impact of name order on election outcomes involves

assigning groups of voters to see different name orders and then testing whether patterns of voting

differ by order.[5] Observed differences between the groups in voting patterns must then be subjected to

tests of statistical significance. These tests determine whether the differences between groups are larger

than would be expected by chance alone and are likely to be attributable to differences in name order.

18.   The power of a significance test to detect a real difference between groups of voters

who saw different orders depends upon the number of independent observations on which the

significance test is based. A study of 1,000 voters is more able to detect real differences than is a study

of only 10 voters. In name order studies, when each voter was individually assigned to a name order,

the number of observations on which a statistical test should be computed is the total number of voters

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[4] Wilson, W. (1910). Hide-and-Seek Politics. *North American Review, 191,* 585-601, (p. 593).

[5] Aronson, E., Ellsworth, P., Merrill Carlsmith, J., & Gonzales, M. (1990). *Methods of Research in Social Psychology*. New York: McGraw-Hill; Crano, W., & Brewer, M. (1973). *Principles of Research in Social Psychology*. New York: McGraw-Hill; Judd, C., & Kenny, D. (1981). *Estimating the Effects of Social Interventions*. New York: Cambridge University Press; Kidder, L., & Judd, C. (1986). *Research Methods in Social Relations*. New York: Holt, Rinehart, and Winston.

participating in the study.

19.   Although random assignment of voters (or groups of voters) to different name orders is ideal regarding this method, many informative studies have used rotation procedures instead. That is, precincts or assembly districts or townships (called "units") were listed in a specific order by election officials, and the order of candidate names was rotated from one unit to the next going down the list, so that each candidate was listed first in an approximately equal number of units. This method yields informative data. However, as Gold's (1952) study illustrated,[6] even an apparently unbiased sequential assignment method can fail to yield equivalent groups (as evidenced by uneven ballot completion rates).[7] Therefore, to confirm the diagnostic value of a study not involving pure random assignment of voters to name orders, an investigator can confirm that the groups of voters who saw different name orders do not differ from one another in terms of characteristics that should not be affected by candidate name order.[8]

20.   In other studies, a group of voters (i.e., everyone in the same precinct) was assigned to one of various name orders, so that all members of a group saw names in the same order. In the studies, the non-independence of the assignment process should be explicitly modeled in the data analysis process.[9] Ignoring the non-independence yields statistical tests that are too liberal, thus making observed differences seem less likely to have occurred by chance alone than is actually the case. Thus, statistical tests should treat groups of voters (in the same precinct, assembly district, township, etc.) as the "unit of analysis" unless the non-independence is taken into account in an

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[6] Gold, D. (1952). A Note on the Rationality of Anthropologists in Voting for Officers. *American Sociological Review 17,* 99-101.

[7] When name order has been determined by an election official using a randomizing device, patterns in the resulting name ordering raise concerns about the degree to which this was done in an unbiased way. In some studies, the candidate who shared the county clerk's party affiliation appeared first on the ballot more often than would occur by chance alone (Bain & Hecock, 1957, p. 11; Darcy & McAllister, 1990, p. 9). Thus, scrutiny is merited when elections officials were tasked with implementing random assignment.

[8] Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly*, *62*, 291-330, (see pp. 299-300).

[9] Darcy, R., & McAllister, I. (1990). Ballot Position Effects. *Electoral Studies, 9* 5-17, (p. 8); Judd, C.M., & Kenny, D.A. (1981). *Estimating the Effects of Social Interventions*. New York: Cambridge University Press, (pp. 55-57).

analysis treating individual voters as the unit of analysis.

B. Concatenating Elections

21.   Another method for studying name order effects involves concatenating the results of a large number of elections in which name order was not varied. After assembling hundreds or thousands of elections conducted in this manner, a researcher can assess whether candidates listed early received more votes on average than did candidates listed later.[10]

22.   In such studies, if candidates listed first typically earned more votes than candidates listed later, this could be an indication of a primacy effect. It could also be an indication of the influence of some other factor. For example, in some studies, candidates were listed alphabetically on the ballots.[11] So an advantage of candidates listed first is also an advantage of candidates whose last

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[10] Bagley, C. R. (1966). Does Candidates' Position on the Ballot Paper Influence Voters' Choice? -- A Study of the 1959 and 1964 British General Elections. *Parliamentary Affairs, 74* 162-74; Bakker, E. A., & Lijphart, A. (1980). A Crucial Test of Alphabetic Voting: The Election at the University of Leiden, 1973-1978. *British Journal of Political Science, 10* 521-25; Brook, D., & Upton., G.J.G. (1974). Biases in Local Government Elections Due to Position on the Ballot Paper. *Applied Statistics, 23* 414-19; Brooks, R.C. (1921). Voters' Vagaries. *National Municipal Review, 10* 161-65; Byrne, G.C., & Pueschel, J.K. (1974). But Who Should I Vote for County Coroner? *Journal of Politics, 36* 778-84; Hughes, C.A. (1970). Alphabetic Advantage in the House of Representatives. *Australian Quarterly, 42* 24-29; Kelley, J., & McAllister, I. (1984). Ballot Paper Cues and the Vote in Australia and Britain: Alphabetic Voting, Sex, and Title. *Public Opinion Quarterly, 48* 452-66; Lijphart, A., & Pintor, R.L. (1988). Alphabetic Bias in Partisan Elections: Patterns of Voting for the Spanish Senate, 1982 and 1986. *Electoral Studies, 7* 225-31; Mackerras, M. (1968). The 'Donkey Vote'. *Australian Quarterly, 40* 89-93; Masterman, C. J. (1964). The Effect of the 'Donkey Vote' on the House of Representatives. *Australian Journal of Politics and History, 10* 221-25; Mueller, J. E. (1969). "Voting on the Propositions: Ballot Patterns and Historical Trends in California. *American Political Science Review, 63* 1197-1212; Nanda, K. (1975). An Experiment in Voting Choice: Who Gets the 'Blind' Vote? *Experimental Study of Politics, 4* 20-35; Robson, C., & Walsh, B. (1974). The Importance of Positional Voting Bias in the Irish General Election of 1973. *Political Studies, 22* 191-203; Upton, G. J. G., & Brook, D. (1974). The Importance of Positional Voting Bias in British Elections. *Political Studies, 22* 178-90; Upton, G. J. G., & Brook, D. (1975). The Determination of the Optimum Position on a Ballot Paper. *Applied Statistics, 24* 279-87; Volcansek, M. L. (1981). An Exploration of the Judicial Election Process. *Western Political Quarterly, 34,* 572-77.

[11] Bagley, C. R. (1966). Does Candidates' Position on the Ballot Paper Influence Voters' Choice? -- A Study of the 1959 and 1964 British General Elections. *Parliamentary Affairs, 74,* 162-74; Bakker, E. A., & Lijphart, A. (1980). A Crucial Test of Alphabetic Voting: The Election at the University of Leiden, 1973-1978. *British Journal of Political Science, 10,* 521-25; Brook, D., & Upton, G.J.G. (1974). Biases in Local Government Elections Due to Position on the Ballot Paper. *Applied Statistics, 23,* 414-19; Brooks, R. C. (1921). Voters' Vagaries. *National Municipal Review, 10,* 161-65; Hughes, C. A. (1970). Alphabetic Advantage in the House of Representatives. *Australian Quarterly, 42,* 24-29; Kelley, J., & McAllister, I. (1984). Ballot Paper Cues and the Vote in Australia and Britain: Alphabetic Voting, Sex, and Title. *Public Opinion Quarterly, 48,* 452-66; Lijphart, A., & Pintor, R.L. (1988). Alphabetic Bias in Partisan Elections: Patterns of Voting for the Spanish Senate, 1982 and 1986. *Electoral Studies, 7,* 225-31; Mackerras, M. (1968). The 'Donkey Vote'. *Australian Quarterly, 40,* 89-93; Masterman, C. J. (1964). The Effect of the 'Donkey Vote' on the House of Representatives. *Australian Journal of Politics and History, 10,* 221-25; Mueller, J. E. (1969). Voting on the Propositions: Ballot Patterns and Historical Trends in California. *American Political Science Review, 63,* 1197-1212; Nanda, K. (1975). An Experiment in Voting Choice: Who Gets the 'Blind' Vote? *Experimental Study of Politics, 4,* 20-35; Robson, C., and Walsh, B. (1974). The Importance of Positional Voting Bias in the Irish General Election of 1973. *Political Studies, 22,* 191-203; Upton, G. J. G., & Brook, D. (1974). The Importance of Positional Voting Bias in British Elections. *Political Studies, 22,* 178-90; Upton, G. J. G., & Brook, D. (1975). The Determination of the Optimum Position on a Ballot Paper. *Applied Statistics, 24,* 279-87.

initials come early in the alphabet. Therefore, statistical analyses should take into account possible preference for names with initials early in the alphabet when isolating the impact of name order.[12]

IV. Findings of Studies Analyzing Name Order Effects

23.   The size of name order effects can be characterized in two quantitative ways. First, the "bump" is (1) the percent of voters who vote for a candidate when he/she was listed first minus (2) the percent of voters who vote for a candidate when he/she was listed in a later position. Positive numbers mean a primacy effect, indicating more votes received when listed first than when listed later. In the discussion that follows, I focus on this measure.

24.   I use the term "gap change" to describe the impact of the name order effect on the margin of victory in a race in which one candidate is listed first on all ballots. The gap change is the difference between the percent of votes gained by the candidate listed first due to name order *and* the percent of votes lost by the other candidate(s) due to name order. In a two-candidate race, the votes gained by one candidate are necessarily lost from the other candidate, so the gap change is simply twice the "bump."

25.   Calculating the gap change is more difficult in races involving three or more candidates. In such races, the bump enjoyed by one candidate may come at the expense of one *or more* of the other candidates. Consequently, each candidate in such races must be characterized by his or her own personal bump in the race, and it is not possible to calculate a single "gap change" for such a race. There are various different gap changes due to changing name order, depending upon what two name

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[12] In this literature review, I mainly focus on studies of real voters in real elections for public offices rather than on studies of hypothetical elections created for experiments conducted by other scientists. *See, e.g.*, Coombs, F. S., Peters, J.G.& Strom, G.S. (1974). Bandwagon, Ballot Position, and Party Effects: An Experiment in Voting Choice. *Experimental Study of Politics, 3,* 31-57; Darcy, R. (1986). Position Effects with Party Column Ballots. *Western Political Quarterly, 39,* 648-62; Kamin, L. J. (1958). Ethnic and party affiliations of candidates as determinants of voting. *Canadian Journal of Psychology*, 12, 205-212; Nanda, K. (1975). An Experiment in Voting Choice: Who Gets the 'Blind' Vote? *Experimental Study of Politics* 4:20-35; Taebel, D. A. (1975). The Effect of Ballot Position on Electoral Success. *American Journal of Political Science, 19,*519-26) or elections not for public offices (Gold, D., 1952).

orders are being compared.

A. Studies Analyzing Name Order Effects in General Elections in the U.S.

26.   Many studies show that primacy effects have occurred routinely in general elections in the U.S. For example, my study of 1992 elections in the three largest counties in Ohio showed widespread primacy effects (Miller & Krosnick, 1998).[13] In the returns from 118 races, statistically significant name order effects appeared in 57 of these races, or forty-eight percent.[14] Ninety-five percent of those statistically significant effects in two-candidate races were primacy effects. The statistically significant primacy effects in these races ranged in size from .79 percentage points to 5.04 percentage points and averaged about 3 percentage points.

27.   If no effect of name order had been present in the remaining 52% of the two-candidate races examined by Miller and Krosnick (1998), then we would expect those races to manifest a pattern such that a candidate received more votes when listed first than when listed last in about half of the races. But in fact, in seventy-eight percent of those races, the observed patterns of vote count differences were consistent with a primacy effect, whereby a candidate got more votes when listed first than when listed later. The average magnitude of the non-significant primacy effect in two candidate races was 1.14 percentage points.

28.   In the races with more than two candidates, eighty percent of the races manifested statistically significant primacy effects, and eighty-one percent of the candidates in those races with non-significant order effects also manifested trends toward primacy.

29.   A second publication of mine described more research findings consistent with the same

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[13] Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly, 62*, 291-330.

[14] This study took advantage of the fact that for decades, Ohio has implemented a procedure of rotating candidate name order across precincts. For each election, each county begins designing ballots by placing its precincts in a sequence determined by size when the precincts were created and by the dates when they were created. Then, in each race, the first precinct on the list in which the race is run displays the candidate names in alphabetical order. In the next precinct, the alphabetically first candidate is moved to the bottom of the list, and all other candidates move up one slot. In the subsequent precinct, the candidate listed first in the second precinct is moved to the bottom of the list, and all other candidates move up one slot. The procedure of rotation is carried out across all precincts in each county. As a result, all competitors in a race appear first on the ballots of approximately equal numbers of voters.

conclusion. In particular, Krosnick, Miller, and Tichy (2004) reported an extensive set of statistical analyses of elections held in 2000 in all counties in Ohio, North Dakota, and California, which rotated candidate names across precincts, counties, or assembly districts in some races in a way that permits scientific measurement of name order effects.[15]

30.   In total, we calculated name order effects for 306 candidates running in 205 races, and primacy effects were again overwhelmingly prevalent. Specifically, 129 of the 170 two-candidate races (76%) manifested primacy effects, and 113 of the 136 candidates (83%) running in races with more than two candidates manifested primacy effects. Even among races that manifested non-significant name order effects, trends in the direction of primacy effects appeared, indicating that being listed first typically advantaged candidates.

31.   Krosnick, Miller, and Tichy (2004) found that name order effects occurred in widely publicized races, in which party affiliations of candidates were listed on the ballot for highly visible offices. For example, George W. Bush received a 9.45 percentage point bump when listed first in California over when he was listed last on the California ballot, a 0.76 percentage point bump when listed first over when listed last in Ohio, and a 1.69 percentage point bump when listed first over when listed last in North Dakota. In every instance, he manifested a primacy effect. In the 2000 Presidential race, of the seven candidates running for President, across the three states, in 19 of the 21 instances, being listed first got a candidate more votes. Thus, even the most publicized races discussed by thousands of news stories can manifest primacy effects.

32.   We also saw primacy effects in highly visible Senate races. In particular, in the race for U.S. Senate in California in 2000, Diane Feinstein received 6.24 percentage points more votes when listed first than when listed last. Five of the seven candidates who ran in that race manifested primacy effects. And in the U.S. Senate race in Ohio in 2000, won by incumbent Mike DeWine, all four

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[15] Krosnick, J. A., Miller, J. M., & Tichy, M. P. (2004). An unrecognized need for ballot reform: Effects of candidate name order. In A. N. Crigler & M. R. Just (Eds.), *Rethinking the vote: The politics and prospects of American election reform*. New York, NY: Oxford University Press.

candidates manifested primacy effects, with an average effect of 1.07 percentage points. Again, this is evidence that these effects occur routinely, even in highly visible races and with highly visible incumbents.

33.   A third research paper of mine, by Pasek et al. (2014), produced more evidence of primacy effects in 76 elections involving 402 candidates in California between 1976 and 2006.[16] In all of these races, candidate name order was rotated across the 80 assembly districts in the state. The number of candidates running per race ranged from two to eight and included races for U.S. President, U.S. Senator, Governor, Lieutenant Governor, Secretary of State, Attorney General, Treasurer, Controller, Insurance Commissioner, and Superintendent of Education. More than 85% of candidates received more votes when listed first. Combining across all races and candidates, the primacy effect was statistically significant, about half a percentage point on average, and it was as large as 4.0 percentage points for individual candidates.

34.   Two other studies analyzing election returns from some of the same races in California reached similar conclusions. Scott (1972) analyzed 1968 and 1970 elections held in California for Governor, Lieutenant Governor, U.S. Senate, and judicial seats, and observed a pronounced primacy effect.[17] More recently, Fillbrunn (2017) also found a primacy effect in general elections in California between 1995 and 2012.[18]

35.   Ho and Imai (2008) analyzed a subset of the California statewide elections examined by Pasek et al. (2014) and found statistically significant primacy effects for 28 of 68 candidates they examined, with a median of 0.2 percentage points.[19] However, as Pasek et al. (2014) explained (see pp.

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[16] Pasek, J., Schneider, D., Krosnick, J.A., Tahk, A., Ophir, E., & Milligan C. (2014), Prevalence and moderators of the candidate name-order effect: Evidence from Statewide General Elections in California, *Public Opinion Quarterly*, *78*, 416-439.

[17] Scott, W. J., (1972). California Ballot Position Statutes: An Unconstitutional Advantage to Incumbents, *Southern California Law Review, 45*, 365-95.

[18] Fillbrunn, M., (2017). Strategic voting and ballot order effects, Unpublished manuscript, Harvard Medical School, Boston, MA.

[19] Ho, D. E., & Imai, K. (2008). Estimating causal effects of ballot order from a randomized natural experiment: The California alphabet lottery, 1978-2002. *Public Opinion Quarterly, 72*, 216-240.

434-435 and Appendix F), Ho and Imai (2008) analyzed a dataset that contained errors and adopted a relatively low power approach to gauging name order effects.[20] Despite these drawbacks, their analyses revealed patterns consistent with the conclusion that primacy effects created an electoral advantage for first-listed candidates.[21]

36. Another paper that I authored (Chen et al., 2014) provided more evidence of primacy effects via analyses of election returns for 36 statewide races run in four election years between 2000 and 2006 in North Dakota.[22] The study revealed that candidates received more votes when listed first than when listed later in 80% of the races involving two candidates.[23] The average effect was 1.17 percentage points, which is statistically significantly different from zero, and the largest effect was 4.6 percentage points, in a race for Supreme Court Justice in 2000. In five races involving more than two candidates, two manifested primacy effects.

37. Blocksom (2008) studied name order effects in the presidential election held in Ohio in 2004 and also found evidence of primacy effects.[24] Analyzing data from more than ten thousand precincts, Blocksom found that all four candidates running for president received more votes when listed first: 1.6 percentage points for Bush, 1.1 percentage points for Kerry, .15 percentage points for

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[20] See, e.g., Grant, S., Perlman, M. D., & Grant, D. (2018). Testing for bias in order assignment with an application to Texas Election Ballots. Unpubished Manuscript, Seattle, WA: University of Washington. https://www.stat.washington.edu/sites/default/files/2018-07/BallotOrder_6-29-2018.pdf

[21] Ho, D. E., & Imai, K. (2006). Randomization inference with natural experiments; An analysis of ballot effects in the 2003 California recall election. *Journal of the American Statistical Association, 101*, 888-900), studied order effects in an unusual election in California in 2003, through which the governor was recalled. But their study did not involve testing precisely for name order effects per se. One hundred thirty-five candidates competed in the race, and candidate names were listed on multiple pages of the ballot and rotated across 80 assembly districts, beginning with the names in an order based on last initials sequenced according to a "random alphabet." This method did not yield full rotation of all candidate names in all possible positions, because 135 exceeded the 80. And because county ballots within assembly districts varied in the number of other races and candidates listed, the placement of gubernatorial candidates on pages of the ballot varied within assembly districts, but not randomly. Being listed on the first page of the ballot was associated with a statistically significant increase in the number of voted earned by more than 40% of the candidates, and even for the remaining candidates, the vast majority received more votes when listed on the first page than when listed later.

[22] Chen, E., Simonovits, G., Krosnick, J. A., & Pasek, J. (2014). The impact of candidate name order on election outcomes in North Dakota. *Electoral Studies, 35*, 115-122.

[23] The process of ordering candidate names there has been done by each county. It begins by ordering the county's precincts according to their size, in descending order. Name order for each race is randomly determined in the largest precinct in each county, and then, the top name is moved to the bottom of the list in the next precinct, and this procedure is repeated until name orders have been assigned to all precincts in the county.

[24] Blocksom, D. (2008). Moderators of the Name-Order Effects: The 2004 Presidential Election in Ohio. Undergraduate Thesis, *Stanford University*, Stanford, California.

Badnarik, and .01 percentage points for Peroutka.

38.   Brockington (2003) found evidence of primacy effects in lower profile, municipal elections as well.[25] Combining across city council elections in Peoria, Illinois, in 1983, 1987, 1991, 1995, and 1999, Brockington found that first-listed candidates received statistically significantly more votes than later listed candidates.[26] These data suggest that movement of a candidate's name down the list by one position (e.g., from first to second) cost an average of about 5 percentage points of votes.

39.   Stewart et al. (2008) analyzed races for seats in the Vermont House of Representatives in 2002, 2004, and 2006 and found evidence consistent with primacy effects in all three years.[27]

40.   Older studies of general elections also produced evidence of primacy effects. For example, Mueller (1969) studied Los Angeles County elections in 1964 and 1965 and found primacy effects in judicial races, though not in the presidential election.[28] In an election held in 1969, in which 133 candidates competed in California to be members of the Junior College Board of Trustees, Mueller (1970) found a pronounced primacy effect.[29] In races for county central committee elections in California between 1948 and 1970, Byrne and Pueschel (1974) found an advantage of being listed first on ballots over being listed second, third, or fourth (plus an advantage of being listed last).[30] And Bain and Hecock (1957) found primacy effects in general elections for State Representative in Denver (in 1950), U.S. House of Representatives in Ohio (in 1950), and City Commissioner and probate judge in Michigan (in 1951).[31]

41.   Thus, a large set of studies has documented primacy effects in many general elections in

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[25] Brockington, D. (2003). A low information theory of ballot position effects. *Political Behavior, 25*, 1-27.

[26] The order of candidate names on the ballot in those races was determined by the order in which the candidates filed with elections officials to run.

[27] Stewart, D., Woodward, D., Moore, K., & Khan. B. (2008). Ballot order effect. Unpublished manuscript. Burlington, VT: Vermont Legislative Research Shop, University of Vermont.

[28] Mueller, J, E. (1969). Voting on the Propositions: Ballot Patterns and Historical Trends in California. *American Political Science Review, 63,* 1197-1212.

[29] Mueller, J. E. (1970). Choosing Among 133 Candidates. *Public Opinion Quarterly, 34,* 395-402

[30] Byrne, G. C., & Pueschel, J. K. (1974). But Who Should I Vote for County Coroner? *Journal of Politics, 36,* 778-84.

[31] Bain, H. M., & Hecock, D. S. (1957). *Ballot position and voter's choice*. Detroit, MI: Wayne State University Press.

the U.S.

B. Studies that Yielded Unusual Findings Regarding U.S. General Elections

42.   In only two publications did the authors offer evidence that seems not to fit with the remainder of the literature. Alvarez et al. (2006) analyzed the same error-laden dataset that Ho and Imai (2008) analyzed, but with even less statistical power, for two reasons.[32] First, Alvarez et al. (2006) examined only 8 statewide general election races run in California in 1998 (all with more than two candidates running), which considerably reduces the number of observations to be considered. Second, Alvarez et al. (2006) examined name order effects for each candidate individually, rather than combining across candidates and races to maximize power (which is needed because name rotation has been done in California across only 80 assembly districts).

43.   Furthermore, the authors did not report tests of name order effects for Republican candidates, and instead of looking for continuous effects of name order, Alvarez et al. (2006) compared the votes earned by a candidate when listed in three positions: (1) first, (2) last, and (3) all other intermediate positions combined.[33] This approach overlooked the continuous name order effect that Pasek et al. (2014) discovered in California elections. And Alvarez et al. (2006) treated census tracts as their units of analysis, whereas the units should be assembly districts, because in California, name order has been rotated across assembly districts.

44.   This investigation yielded evidence of 32 statistically significant effects indicating a candidate receiving more votes when listed earlier (what the authors refer to as primacy and anti-latency effects), in addition to 32 statistically significant instances where a candidate received more votes when listed later (what the authors call latency and anti-primacy effects). However, Alvarez et al. (2006) did not describe the magnitudes of these statistically significant name order effects and did not

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[32] Alvarez, R. M., Sinclair, B., & Hasen, R. L. (2006). How much is enough? The 'ballot order effect' and the use of social science research in election law disputes. *Election Law Journal, 5*, 40-56.

[33] Alvarez et al. (2016) used Seemingly Unrelated Regression, a statistical technique different from that used in other investigations, but Pasek et al. (2014) showed that this technique produces similar results to a variety of other techniques.

report exact p-values (to indicate exact levels of statistical significance), so the directions of the effects cannot be directly inspected, and the overall pattern cannot be fully judged.

45.   Because Pasek et al.'s (2014) analysis of the same elections yielded evidence of consistent primacy effects, the Alvarez et al. (2006) conclusions should be taken with a grain of salt, to say the least. Nonetheless, Alvarez et al. (2006) did report observing dozens of statistically significant primacy effects.

46.   Darcy (1986) found no primacy effects in his analysis of elections in two Colorado counties in 1984 for President, U.S. Senate, U.S. Congressional Representative, Board of Education, Regent at Large, District Attorney, and State Representatives.[34] There is no obvious explanation for why this outlier study failed to yield evidence of the sorts of primacy effects that have been seen consistently in nearly all other published studies.

C.   Studies Analyzing Name Order Effects in Primaries in the U.S.

47.   Studies of primary elections have also uncovered a great deal of evidence of primacy effects. Koppell and Steen (2004), for example, studied 79 Democratic primary elections in New York City in 1998, involving races for Governor, Lieutenant Governor, Attorney General, U.S. Senator, U.S. Representative, New York State Senator, New York State Assembly Member, and Civil Court Judge, and four Democratic Party offices: Male District Leader, Female District Leader, State Committeeman, and State Committeewoman.[35] These investigators found an overwhelming prevalence of primacy effects. Being listed first gained a candidate more votes than being listed later in 92% of the 79 races examined. Of the 180 candidates running, 89% received more votes when listed first.[36] In the races for Governor, U.S. Senator, Lieutenant Governor, and Attorney General, the primacy effect was 2.3 percentage points, 1.8 percentage points, 1.6 percentage points, and 2.2 percentage points, respectively.

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[34] Darcy, R. (1986). Position Effects with Party Column Ballots. *Western Political Quarterly, 39,* 648-62.
[35] Koppel, J. G. S., & Steen, J. A. (2004). The effects of ballot position on election outcomes. *Journal of Politics, 66*, 267–281.
[36] Name order was rotated from precinct to precinct.

The average primacy effect in 75 local races was 3.1 percentage points, and the largest effect was 11.4 percentage points. When examining individual candidates separately, the primacy effect averaged 3.4 percentage points, and the largest was 14.5 percentage points.

48.   Similar findings appeared in a study that I conducted of primary elections held in New Hampshire (Krosnick, 2005).[37] Along with Professor Joanne Miller, I examined 17 races held there for Governor, U.S. Senate, and U.S. House of Representatives. Of the 51 candidates analyzed, 37% showed statistically significant order effects. One hundred percent of the significant name order effects in two-candidate races were primacy effects, ranging in size from 2.27 percentage points to 7.73 percentage points, averaging 4.03 percentage points. Furthermore 100% of the non-significant differences were in the direction of primacy effects for the two-candidate races.

49.   Thirty-one percent of the races with more than two candidates manifested statistically significant name order effects, all of which were primacy effects. The effects ranged in size from .51 percentage points to 9.05 percentage points and averaged 3.06 percentage points. And in the races with more than two candidates in which a name order effect was not statistically significant, 95% of the differences were in the direction of primacy, averaging 1.67 percentage points.

50.   Grant (2017) found a primacy effect in every one of the 24 Democratic and Republican primary and runoff elections in Texas in 2014, where name order was randomized within each county.[38] The same sort of advantage of being listed first in primaries was documented by Brooks (1921) in a 1920 primary election in Pennsylvania.[39] And White (1950) found a very strong primacy effect in the 1948 Republican primary for a seat in the Ohio Senate.[40]

51.   Edwards (2015) studied primary elections for the U.S. Congress between 1979 and

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[37] Krosnick, J. A. (2005). A report on the effects of name order on vote percentages for candidates in the 2000, 2002, and 2004 Democratic and Republication New Hampshire primaries. Unpublished manuscript. Stanford, CA: Stanford University.
[38] Grant, D. (2017). The ballot order effect is huge: Evidence from Texas. *Public Choice, 172*, 421-442.
[39] Brooks, R. C. (1921). Voters' Vagaries. *National Municipal Review, 10*, 161-65.
[40] White, H. (1950). Voters Plump for First on List. *National Municipal Review, 39*, 110-111.

2012 and State Legislatures between 1967 and 2010.[41] By comparing elections in which candidates were listed alphabetically by name versus those in which candidates were listed by random assignment or rotation, he found a statistically significant advantage for candidates listed first.

52.   In 2008, Ho and Imai (2008) analyzed a set of California primaries and found that 74 of 128 candidates manifested statistically significant primacy effects, with a median of 1.6 percentage points.

53.   Brockington (2003) studied primaries for municipal city council elections in Peoria, Illinois, in 1983, 1987, 1991, 1995, and 1999 and also came to the same conclusion regarding primacy effects.[42] As noted above, the order of candidate names on the ballot in those races was determined by the order in which the candidates filed with elections officials to run. Combining across many primary elections, Brockington found that first-listed candidates received statistically significantly more votes than later listed candidates. Movement of a candidate's name down the list by one position (e.g., from first to second) cost an average of about 2 percentage points.

54.   And Bain and Hecock (1957) found primacy effects in primaries for State Senator in Ohio (in 1948), and for U.S. House of Representatives, State Senate, Lieutenant Governor, U.S. Senate, County Clerk, Drain Commissioner, State Representative, and Governor in Michigan (in 1952).[43]

55.   Only one paper reported tests that failed to turn up evidence of primacy effects in primary elections for members of the Board of Trustees of the Los Angeles Community Colleges.[44]

D. Study of Name Order Effects in the 2016 U.S. Presidential Election

56.   I recently completed an investigation of name order effects in the 2016 U.S. Presidential

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[41] Edwards, B. (2015). Alphabetically ordered ballots make elections less fair and distort the composition of legislatures. *Democratic Audit UK, 16*, http://www.democraticaudit.com/2015/06/16/alphabetically-ordered-ballots-make-elections-less-fair-and-distort-the-composition-of-legislatures.
[42] Brockington, D. (2003). A low information theory of ballot position effects. *Political Behavior, 25*, 1-27.
[43] Bain, H. M., & Hecock, D. S. (1957). *Ballot position and voter's choice*. Detroit, MI: Wayne State University Press.
[44] Nakanishi, M., Cooper, L. G., & Kassarjian, H. H. (1974). Voting for a political candidate under conditions of minimal information. *Journal of Consumer Research, 1(2)*, 36-43.

race in New Hampshire, and the results are in line with those described above.[45] In New Hampshire, party column ballots were used, in which all candidates from a party appear in a single column, with each row listing a separate race. The order of the party columns was rotated across the approximately 300 townships in the state, thus placing each candidate first in about an equal number of townships. A statistical analysis of each township controlling for partisanship revealed that Hillary Clinton received 1.5 percentage points more votes when listed first than when listed later (p=.04, one-tailed), and Donald Trump received 1.7 percentage points more votes when listed first than when listed later (p=.03, one-tailed).

E. Studies of Name Order Effects Abroad

57.   Evidence of name order effects also comes from studies done in countries other than the U.S. For example, primacy effects have been documented in elections in Australia[46], the United

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[45] MacInnis, B., Miller, J., Krosnick, J. A., Lindner, M., & Below, C. (2019). Candidate name order effects in New Hampshire: Evidence from primaries and from general elections with party column ballots. Unpublished report being drafted, Stanford University, Stanford, California.

[46] King, A., & Leigh, A. (2009). Are ballot order effect homogeneous? *Social Science Quarterly, 90*, 71-87; Hughes, C. A. (1970). Alphabetic advantage in the house of representatives. *Australian Quarterly, 42*, 24-29; Kelley, J., & McAllister, I. (1984). Ballot paper cues and the vote in Australia and Britain: Alphabetic voting, sex, and title. *Public Opinion Quarterly, 48*, 452-466; Masterman, C. J. (1964). The Effect of the 'Donkey Vote' on the House of Representatives. *Australian Journal of Politics and History, 10,* 221-25. Hosenally, M., & Auchoybur, N. Effect of alphabetical ballot ordering on voting behaviour: The case of Mauritius. *Australian Journal of Commerce Study.* http://www.academia.edu/8718680/Effect_of_Alphabetical_Ballot_Ordering_on_Voting_Behaviour_The_Case_of_Mauritius

Kingdom[47], Ireland[48], Colombia[49], Denmark[50], Belgium[51], Germany[52], Greece[53], Chile[54], Japan[55],

Malta[56], the Czech Republic[57], Poland[58], Slovakia[59], Spain[60], the Netherlands[61], Switzerland[62], and

[47] Bagley, C. R. (1966). Does Candidates' Position on the Ballot Paper Influence Voters' Choice? -- A Study of the 1959 and 1964 British General Elections. *Parliamentary Affairs, 74*, 162-74; Brook, D., & Upton, G. J. G. (1974). Biases in Local Government Elections Due to Position on the Ballot Paper. *Applied Statistics, 23,* 414-19; Upton, G. J. G., & Brook, D. (1974). The Importance of Positional Voting Bias in British Elections. *Political Studies, 22* 178-90; Upton, G. J. G., & Brook, D. (1975). The Determination of the Optimum Position on a Ballot Paper. *Applied Statistics, 24* 279-87. Badawood, D. & Wood, J. (2012). Effects of candidate position on ballot papers: Exploratory visualization of voter choice in the London local council elections 2010. Paper presented at the Geographic Information Science Research UK 19th Annual Conference (GISRUK 2011), 27 - 29 Apr 2011, University of Portsmouth, Portsmouth, UK. Only one U.K. study found no primacy effects: Kelley, J., & McAllister, I. (1984). Ballot paper cues and the vote in Australia and Britain: Alphabetic voting, sex, and title. *Public Opinion Quarterly, 48*, 452-466).

[48]Robson, C., & Walsh, B. (1974). The Importance of Positional Voting Bias in the Irish General Election of 1973. *Political Studies, 22,* 191-203. Reidy, T., & Buckley, F. (2015). Ballot paper design: Evidence from an experimental study at the 2009 local elections. *Irish Political Studies, 30*, 619-640 found evidence of statistically significant primacy effects in experiments run near polling places during local elections in Ireland; Regan, John (2012). Ballot order effects: An analysis of Irish general elections, Working Paper Series, UCD Centre for Economic Research, No. 12/16.

[49]Gulzar, S., & Ruiz, N. A. (2018). Ballot order effects and party responses: Evidence from lotteries in Colombia. Unpublished manuscript, Stanford University, Stanford, California

[50] Blom-Hansen, J., Elkit, J., Serritzlew, S., & Villadsen, L. R. (2016). Ballot position and election results: Evidence from a natural experiment. *Electoral Studies, 44*, 172-183.

[51] Geys, B., & Heyndels, B. (2003). Ballot layout effects in the 1995 elections of the Brussels government. *Public Choice, 116*, 147-164. Geys, B., & Heyndels, B. (2003). Influence of 'cognitive sophistication' on ballot layout effects. *Acta Politica*, *38*(4), 295-311. van Erkel, P. F., & Thijssen, P. (2016). The first one wins: Distilling the primacy effect. *Electoral Studies*, *44,* 245-254.

[52] Faas, T., & Schoen, H. (2006). The importance of bring first: Effects of candidates' list positions in the 2003 Bavarian state election. *Electoral Studies, 25*, 91-102. Däubler, T., & Rudolph, L. (in press). Cue-taking, satisficing, or both? Quasi-experimental evidence for ballot position effects. *Political Behavior*.

[53] Abakoumkin, G. (2011). Forming choice preferences the easy way: Order and familiarity effects in elections. *Journal of Applied Social Psychology, 41*, 2689 – 2707. Augenblick, N. & Nicholson, S. (2016). Ballot position, choice fatigue, and voter behaviour. *Review of Economic Studies*, 83, 460–480.

[54] Quiroga, M. M., & Becerra, A. (2018). The effect of the position of the candidate on the voting card. The case of the Chilean local elections of 2008 and 2012. *Colombia Internacional, (96)*, 29-55.

[55] Fukomoto, K. (2018). The effect of candidate list position on vote share: Improving internal and external validity. Paper Presented at the 1st Annual Meeting of the Japanese Society for Quantitative Political Science, January 8–9, 2018, and the 5th Asian Political Methodology Meeting, Seoul National University, January 11–12, 2018.

[56] Ortega Villodres, C. (2008). Gender and party duopoly in a small state: Ballot position effects under the single transferable vote in Malta, 1947–2008. *South European Society and Politics*, 13(4), 435-456.

[57] Jurajda, Š., & Münich, D. (2015). Candidate ballot information and election outcomes: the Czech case. Post-Soviet Affairs, 31(5), 448-469. Marcinkiewicz, K., & Stegmaier, M. (2015). Ballot position effects under compulsory and optional preferential-list PR electoral systems. *Political Behavior*, 37(2), 465-486.

[58] Marcinkiewicz, K., & Stegmaier, M. (2015). Ballot position effects under compulsory and optional preferential-list PR electoral systems. *Political Behavior*, 37(2), 465-486.

[59] Spac, P. (2016). The role of ballot ranking: Preferential voting in a nationwide constituency in Slovakia. *East European Politics and Societies and Cultures, 30*, 644-663.

[60] Lijphart, A., & Pintor, R. L. (1988). Alphabetic bias in partisan elections: Patterns of voting for the Spanish senate, 1982 and 1986. *Electoral Studies, 7,* 225-31. Bagues, M., & Esteve-Volart, B. (2011) The effect of ballot order: Evidence from the Spanish Senate. Unpublished manuscript, Universidad Carlos III and FEDEA, Madrid, Spain.

[61] Bakker, E. A., & Lijphart, A. (1980). A Crucial test of alphabetic voting: the election at the University of Leiden, 1973-1978. *British Journal of Political Science, 10*, 521-25.

[62] Lutz, G. (2010). First come, first served: The effect of ballot position on electoral success in open list PR elections. *Representation*, *46*(2), 167-181.

Canada[63]. Only Hansen and Olsen (2014) failed to find primacy effects, in Afghanistan.[64]

F. Other Scientists' Conclusions in Their Own Words

58.   When examining their own evidence and the larger literature on this topic, numerous

other social scientists have reached the same conclusions that I have about the prevalence of primacy

effects in elections.

> Bakker and Lijphart (1980): "Politicians and political scientists have long known that there is a slight tendency among voters to prefer candidates whose names appear at the top of the ballot compared with lower-placed candidates, and hence that *ceteris paribus* the former have a somewhat better chance of being elected than the latter."[65]

> Beazley (2013): "Legislators show by their behavior—both in the laws that they enact and the way that they run for office—that they believe in the existence of at least one kind of position-influenced vote: primacy effect votes."[66]

> Abakoumkin (2011): "Primacy effects were observed in this study almost consistently … candidates who were listed earlier on the voting sheets had an advantage over candidates who were listed later."[67]

> Bagues and Esteve-Volart (2011): "Ample evidence from many countries suggests that being placed at the top of the ballot increases the share of votes received."[68]

> Däubler and Rudolph (in press): "Candidates near the top of a ballot paper and particularly in the first position receive more votes than candidates listed further down."[69]

> Däubler and Rudolph (in press): "We find clear evidence for considerable ballot position effects … moving from rank two to rank one implies a more than fourfold increase in vote share."[70]

> Edwards (2014): "The vast majority of applied works find that some small percentage of votes is determined by ballot position and this windfall largely goes to the first-listed candidate."[71]

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[63] Tessier, C., & Blanchet, A. (2018). Ballot Order in Clueless Elections: A Comparison of Municipal and Provincial Elections in Quebec. *Canadian Journal of Political Science, 51*, 83-102.

[64] Hansen, B. T., & Olsen, A. L. (2014). Order in chaos: Ballot order effects in a post-conflict election? *Research and Politics*, October-December 2014, 1-4.

[65] Bakker, E. A., & Lijphart, A. (1980). A crucial test of alphabetic voting: the election at the University of Leiden, 1973-1978. *British Journal of Political Science, 10*, 521-25, p. 521.

[66] Beazley, M. B. (2013). Ballot design as fail-safe: An ounce of rotation is worth a pound of litigation. *Election Law Journal, 12(1)*, 18-52, p. 26-27.

[67] Abakoumkin, G. (2011). Forming choice preferences the easy way: Order and familiarity effects in elections. *Journal of Applied Social Psychology, 41(11)*, 2689-2707, p. 2698.

[68] Bagues, M., & Esteve-Volart, B. (2011). The effect of ballot order: Evidence from the Spanish Senate. Unpublished manuscript, Universidad Carlos III and FEDEA, Madrid, Spain, p. 2.

[69] Däubler, T., & Rudolph, L. (in press). Cue-taking, satisficing, or both? Quasi-experimental evidence for ballot position effects. *Political Behavior*, p. 2.

[70] Däubler, T., & Rudolph, L. (in press). Cue-taking, satisficing, or both? Quasi-experimental evidence for ballot position effects. *Political Behavior*, p. 3-4.

[71] Edwards, B.C. (2014). Race, ethnicity, and alphabetically ordered ballots. *Election Law Journal, 13(3)*, 394-404, p. 395.

Badawood and Wood (2012): "The order of placement of the names of candidates acts to bias voters towards those whose names are towards the top of the ballot paper."[72]

Marcinkiewicz and Stegmaier (2015): "The bonus for candidates placed at the top of the ballot has been well-documented."[73]

Regan (2012): "There is a significant advantage to be located near the top of the ballot paper."[74]

Jurajda and Münich (2015): "Slates ordered within the first three positions on ballot paper enjoy higher shares of council seats won in both regional and large-municipality election contests."[75]

Lutz (2010): "Being listed first on the ballot has a double advantage to attract more preference votes."[76]

van Erkel and Thijssen (2016): "During elections, a name-order effect takes place, meaning that the first candidate on the ballot list disproportionally benefits from this position."[77]

Ortega Villodres (2008): "Being listed first on the ballot is a distinct electoral advantage."[78]

Lijphart and Pintor (1988): "The phenomenon of positional bias - that it is to a candidate's advantage to be first or as high as possible on the ballot - has been known for a long time."[79]

Scott (1972): "Previous studies of ballot position effect have yielded almost unanimous results: all other factors being equal, the name appearing first in a list of candidates attracts a larger than random share of the vote."[80]

G. Meta-Analysis of Studies of Name Order Effects

59.   To summarize this entire literature quantitatively, I took an approach much like the

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[72] Badawood, D. & Wood, J. (2012). Effects of candidate position on ballot papers: Exploratory visualization of voter choice in the London local council elections 2010. Paper presented at the Geographic Information Science Research UK 19th Annual Conference (GISRUK 2011), 27 - 29 Apr 2011, University of Portsmouth, Portsmouth, UK.

[73] Marcinkiewicz, K., & Stegmaier, M. (2015). Ballot position effects under compulsory and optional preferential-list pr electoral systems. *Political Behavior*, *37*, 465-486, p. 473.

[74] Regan, John (2012). Ballot order effects: An analysis of Irish general elections, Working Paper Series, UCD Centre for Economic Research, No. 12/16.

[75] Jurajda, Š., & Münich, D. (2015). Candidate ballot information and election outcomes: the Czech case. Post-Soviet Affairs, 31(5), 448-469.

[76] Lutz, G. (2010). First come, first served: the effect of ballot position on electoral success in open list PR elections. *Representation*, *46*(2), 167-181.

[77] van Erkel, P. F. A., & Thijssen, P. (2016). The first one wins: Distilling the primacy effect. *Electoral Studies*, *44*, 245–254, p. 246

[78] Ortega Villodres, C. (2008). Gender and party duopoly in a small state: Ballot position effects under the single transferable vote in Malta, 1947–2008. *South European Society and Politics*, 13(4), 435-456.

[79] Lijphart, A., & Pintor, R. L. (1988). Alphabetic bias in partisan elections: Patterns of voting for the Spanish Senate, 1982 and 1986. *Electoral Studies*, *7 (3)*, 225-231, p. 225.

[80] Scott, W. J. (1972). California ballot position statutes: An unconstitutional advantage to incumbents. *Southern California Law Review*, *45 (2)*, 365-395, p. 366.

technique called "meta-analysis," which involves gathering up a comprehensive set of literature on a topic and quantitatively evaluating the results of the studies.[81] To do so, I reviewed all tests of name order effects in the publications cited in Sections A through E, examining primary, general, and special elections for government offices in the United States and abroad, and counted the number of unique tests that revealed primacy effects, recency effects, and other patterns.[82] In total, 1,100 tests of name order effects were reported with sufficient detail to permit counting.

60.   84% of the available tests manifested differences in the direction of primacy, a statistically significant pattern, suggesting that this near unanimity is not the result of chance alone ($p <$ .000001). Only 12% of the differences were in the direction of a recency effect.

61.   When focusing only on the reported differences that were each subjected to tests of statistical significance in the original publications (1,067 instances total), 40% of the observed differences were significant and in the direction of primacy effects, 45% were not significant but in the direction of primacy, 2% were significant and in the direction of recency, and 10% were not significant but in the direction of recency. Another 2% were "other" effects, and 1% showed zero effect. Put differently, of the 1,067 instances in which statistical significance was tested, 91% of the significant name order effects were in the direction of primacy, and only 4% were in the direction of recency (with 5% representing other effects).[83]

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[81] Cooper, H. & Hedges, L.V. (1994). *The Handbook of Research Synthesis*. New York: Russell Sage.

[82] If an election was studied in multiple publications, the publication conveying the greater number of effects was used.

[83] Some researchers might be tempted to hesitate about counting the number of statistically significant results in such an accounting, because they think that doing so might cause a "Type I error," which is concluding that primacy effects are real when they are in fact not real. This can, in theory, occur because each observed effect of name order has a 5 percent chance of having a p-value less than .05 by chance alone. The more significance tests a researcher concludes, the greater the possibility that one of those tests will be statistically significant (i.e., less than .05) when there is no name order effect. Of course, the p-value of the sign test reported above shows that the probability of obtaining the observed data pattern by chance alone is miniscule. Some researchers might be tempted to adjust the p-values here to take into account the fact that multiple tests have been conducted. But they would be wrong. As Armstrong (Armstrong, R. A. (2014). When to use the Bonferroni correction. *Ophthalmic Physiology, 34*, 502 – 508) explained, adjusting p-values for this reason "is a conservative procedure" that likely causes "real" effects to be undetected. And as O'Keefe (O'Keefe, D. J. (2003). Colloquy: Should familywise alpha be adjusted? Against familywise alpha adjustment. *Human Communication Research*, *29(3)*, 431–447) said, "adjusting the [p-value] because of the number of tests conducted in a given study has no principled basis, commits one to absurd beliefs and policies, and reduces statistical power. The practice of requiring or employing such adjustments should be abandoned." Therefore, I made no such adjustments.

62.   These numbers should come as no surprise in light of the prior review of the individual studies documenting an overwhelming prevalence of primacy effects in past assessments.

H. Studies Demonstrating Primacy Effects in Choices and Behaviors Other Than Voting

63.   Many studies have examined order effects on choices and behaviors other than voting and have consistently documented that a notable percentage of people manifest bias toward selecting the first option presented to them when a set of options is presented visually, as is true for candidate names on election ballots.

64.   For example, choosing a candidate from among an array listed on the ballot is similar in some ways to choosing a consumer product from among the many competing brands offered in a taste test or on a store shelf, and studies of order effects in these settings show that people are inclined to choose the first item presented to them.[84]

65.   Nearly two dozen scientific studies of order effects in questions have been published in scientific journals. In these studies, respondents were shown the response options on paper or a computer screen (paralleling the visual presentation of candidate names in voting booths).[85] Different

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[84] *See, e.g.,* Coney, K. A. (1977). Order-bias: The special case of letter preference. *Public Opinion Quarterly, 41*, 385-388; Dean, M. L. (1982). Alphabetic notation bias in blind test research. *The Journal of Psychology, 111*, 269-271; Mantonakis A., Rodero P., Lesschaeve I. & Hastie R. (2009). Order in choice: Effects of serial position on preferences. *Psychological Science, 20*, 1309–1312.

[85] *See, e.g.,* Ayidiya, S. A., & McClendon, M. J. (1990). Response effects in mail surveys. *Public Opinion Quarterly, 54,* 229-47; Becker, S.L. (1954). Why an order effect. *Public Opinion Quarterly, 18,* 271-78; Bishop G. F., Hippler H. J., Schwarz N., & Strack F. (1988). A comparison of response effects in self-administered and telephone surveys. *In Telephone Survey Methodology*, ed. Groves, R. M., Biemer, P. P., Lyberg, L. E., Massey, J.T., Nicholls II, W. L., & Waksberg, J., pp. 321-34, New York; Wiley Campbell, D. P., & Sorenson, W. W. (1963). Response set on interest inventory triads. *Educational and Psychological Measurement, 13*, 145-152; Campbell, D. T., & Mohr, P. J. (1950). The effect of ordinal position upon responses to items in a checklist, *Journal of Applied Psychology, 34*, 62-67; Cochrane, R., & Rokeach, M. (1970). Rokeach's value survey: A methodological note. *Journal of Experimental Research in Personality, 4*, 159-161; Coney, K. A. (1977). Order-bias: The special case of letter preference. *Public Opinion Quarterly, 41*, 385-388; Dean, M. L. (1982). Alphabetic notation bias in blind test research. *The Journal of Psychology, 111*, 269-271; Dillman, D. A., Brown, T. L., Carlson, J. E., Carpenter, E. H., Lorenze, F. O., Mason, R., Saltiel, J., & Sangster, R. L. (1995), Effects of category order on answers in mail and telephone surveys, *Rural Sociology, 60*, 674-687; Greenstein, T. & Bennett, R. R. (1974). Order effects in Rokeach's value survey, *Journal of Research in Personality, 8*, 393-396; Holbrook, A. L., Krosnick, J. A., Carson, R. T., & Mitchell, R. C. (2000). Violating conversational conventions disrupts cognitive processing of attitude questions, *Journal of Experimental Social Psychology, 36*, 465-494; Israel, G. D., & Taylor C. L. (1990). Can response order bias evaluations? *Evaluation and Program Planning 13*, 365-71; Krosnick, J. A., & Alwin, D. F. (1987). An evaluation of a cognitive theory of response order effects in survey measurement, *Public Opinion Quarterly, 51*, 201-219; Market Facts, Inc. (n.d.), An examination of order bias. *Research on Research, 1*, Arlington Heights, IL: Market Facts; Mathews, C. O. (1927). The effect of position of printed response words upon children's answers to questions in two-response types of tests. *Journal of Educational Psychology, 18*,

respondents were offered sets of answer choices in different orders, and the investigators assessed whether order of presentation affected the choices people made among the options. Taken together, these studies reported 49 tests of response option order effects, and 40 of the tests (82%) showed that an option was selected more often when presented first than when presented later in a list of choices.

66.   Furthermore, when students take multiple-choice knowledge tests, they are biased toward selecting answers offered early in a list, so they tend to answer items correctly more often when the correct answer is listed first than when it is listed last.[86] When people are told that an experimenter will imagine a series of questions and they should guess which of a set of printed response choices is the correct answer, people tend to select the first ones listed.[87]

67.   In light of this sort of evidence about primacy effects occurring under conditions of visual presentation of choice options, it is not surprising that the studies of voting almost universally have found similar primacy effects. If anything, it would be surprising if we did not observe primacy effects in the political arena.

V. Why Name Order Effects Occur in Elections

68.   Psychological theory suggests two possible explanations for name order effects in elections. One theory involves the tremendous burden levied on voters in the context of American

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445-457; Ring, E. (1974), Wie man bei listenfragen einflusse der reihenfolge ausschalten kann. *Psychologie und Praxis*, 105-113; Ring, E. (1975). Experimental evidence demonstrates how it is possible to eliminate the serial position effect: Asymmetrical rotation. *European Research,* May 1975, 111-119; Schwarz, N., Hippler, H. J., & Noelle-Neumann, E. (1992). A cognitive model of response-order effects in survey measurement. *In Context Effects in Social and Psychological Research*, ed. Schwarz, N., & Sudman, S. New York: Springer-Verlag; Schwarz, N., Hippler, H., & Noelle-Newmann, E. (1994). A cognitive model of response-order effects in survey measurement. In Schwarz, N. & Sudman, S. (Eds.). Context effects in social and psychological research (pp. 189-201). New York: Springer-Verlag; Sigleman, C.K. & Budd, E.C. (1986). Pictures as an aid in questioning mentally retarded persons. *Rehabilitation Counseling Bulletin, 29*, 173-181; Wagner, E. E. & Binning, J. F. (1978). Use of cautionary instructions for eliminating position error in ranking. *Perceptual and Motor Skills, 46*, 976-978; Wagner, E. E. & Hoover, T. O. (1974a). The influence of technical knowledge on position error in ranking. *Journal of Applied Psychology, 59*, 406-407; Wagner, E. E., & Hoover, T. O. (1974b). Effect of terminal ranking error on meaningful occupational choice. *Journal of Applied Psychology, 59*, No. 2, 247-248; Wagner, E. E., & Hoover, T. O. (1974c). The effect of serial position on ranking error. *Educational and Psychological Measurement, 34*, 289-293.

[86] Cronbach, L. J. (1950). Further Evidence on Response Sets and Test Design. *Educational and Psychological Measurement, 10*, 3-31; Mathews, C. O. (1927). The Effect of Position of Printed Response Words Upon Children's Answers to Questions in Two-Response Types of Tests. *Journal of Educational Psychology, 18*, 445-457.

[87] Berg, I. A., & Rapaport, G. M. (1954). Response Bias in an Unstructured Questionnaire. *Journal of Psychology, 38,* 475-481.

democracy, where people may feel that being a "good and responsible democratic citizen" requires them not only to go to the polls but also to cast votes in all listed races, even when they know only a little about the candidates or have not made a firm choice among them before entering the voting booth. In these circumstances, the order of candidate names on the ballot constitutes a "nudge" in the direction of the first-listed candidate.

69.   In California, for example, citizens have routinely been asked to vote on a dozen ballot issues on topics ranging from insurance reforms, to tort claims, to school funding, to the confidentiality of AIDS tests.[88] And in all states, voters have sometimes been asked to make choices in well over two dozen races, ranging from high visibility contests to races for offices so obscure that many voters probably could not describe the job responsibilities associated with them. In 1911, for instance, Cleveland, Ohio voters were confronted with 74 candidates for city offices, 12 candidates for Board of Education, 14 candidates for Municipal Court Judges, and 32 candidates for Constitutional Convention.[89] Eighty years later, in 1992, Cleveland voters were asked to cast ballots in over 40 county and statewide races, plus a number of district-wide races.

70.   Because races for highly visible offices (e.g., for U. S. President and U.S. Senate) receive a great deal of news media attention, often involve well-known incumbents, and usually involve explicit endorsements of candidates by political parties, voters who wish to make substance-based choices can do so in principle. But in many contests, candidates did not take clear and divergent stands on specific policy issues,[90] and media coverage of such contests has often focused on the horserace rather than on the candidates' records and policy positions.[91] The cognitive demands of sifting through lots of such media coverage and extracting useful, substantive information about

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[88] Allswang, J. M. (1991). *California Initiatives and Referendums 1912-1990*. California: California Direct Democracy Project; Beck, P. A. (1997). *Party Politics in America*. New York: Longman, (p. 250).
[89] Davies, P. J. (1992). *Elections USA*. New York: Manchester University Press.
[90] Berelson, B., Lazarsfeld, P., & McPhee, W. (1954). Voting: A Study of Opinion Formation in a Presidential Campaign. Chicago: University of Chicago Press; Page, B. (1978). Choices and Echoes in Presidential Elections. Chicago: University of Chicago Press.
[91] Patterson, T. E. (1994). *Out of Order*. New York: Vintage Books.

candidates' positions may therefore be so substantial as to outstrip some voters' incentives to do the work.[92] Much research suggests that under such circumstances, many citizens rely on only a small subset of substantive information to make such vote choices, pursing what Popkin called "low information rationality."[93]

71.   Media coverage of races for less visible offices (e.g., Attorney General, Auditor, Judge, Sheriff, Coroner, and Board of Education) has often been much more limited, making it even more difficult for voters to make choices based upon substance.[94] People pursuing low information rationality can sometimes rely on cues, such as party affiliation, which can help them identify candidates with whom they are likely to agree on policy issues.[95] But party affiliations are often not listed on the ballot for the very races that receive the least media coverage.

72.   Alternatively, people can rely upon name recognition: the candidate whose name sparks a stronger sense of familiarity is most likely to be the incumbent, who by virtue of his or her presumed experience may be considered the safer choice.[96] But because holders of low-visibility offices probably get very little media attention during their tenures, voters may only rarely recognize their names.

73.   What do people do when no such cues are present at all to guide their choices? In some years, large numbers of people have gone to the polls to vote in a few highly visible contests, yet they were asked to vote in less publicized races. The higher roll-off rates typical of such races presumably reflect some voters' choices to abstain because they lack sufficient knowledge.[97]

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[92] Downs, A. (1957). *An Economic Theory of Democracy*. NY: Harper.

[93] Popkin, S. (1991). The Reasoning Voter: Communication and Persuasion in Presidential Campaigns. Chicago: University of Chicago Press.

[94] Graber, D. (1991). The Mass Media and Election Campaigns in the United States of America. In *Media, Elections and Democracy*, ed. Fletcher, F.J. Toronto, Dundurn Press.

[95] Campbell, A., Converse, P.E., Miller, W.E., & Stokes, D.E. (1960). *The American Voter*. New York: Wiley, J.; Miller, W. E., & Shanks, J.M. (1996). *The New American Voter*. Cambridge, MA: Harvard University Press.

[96] Jacobson, G. C. (1987). *The Political of Congressional Elections*. Boston, MA*:* Little, Brown, and Company; Mann, T. E., & Wolfinger, R.E. (1980). Candidates and Parties in Congressional Elections. *American Political Science Review, 74*, 617-632.

[97] Burnham, W. D. (1965). The Changing Shape of the American Political Universe. *American Political Science Review, 59,* 7-28; Robinson, J. A., & Standing, W. H. (1960). Some Correlates of Voter Participation: The Case of Indiana. *Journal of Politics, 22*, 96-111; Vanderleeuw, J. W. & Engstrom, R. L. (1987). Race, Referendums, and Roll-off. *Journal of Politics, 49*, 1081-92.

74.   Another psychological theory proposes that confirmatory bias will cause a primacy effect. When evaluating a set of choices to select one of them, people usually begin a search of memory for information about each object by looking for reasons to select it, rather than reasons not to select it.[98] So when considering a list of political candidates, voters may first search memory primarily for reasons to vote for each contender rather than reasons to vote against him or her. And when working through a list of candidates, people may think less and less about each subsequent alternative, because they become increasingly fatigued, and short-term memory becomes increasingly clogged with thoughts. Therefore, people may be more likely to generate supportive thoughts about candidates listed initially and less likely to do so for later-listed candidates, biasing them toward voting for the former.

75.   In theory, people attempting to retrieve reasons to vote for a candidate may occasionally fail completely, retrieving instead only reasons to vote against him or her. If this happens for <u>all</u> candidates in a given race, cognitive fatigue and short-term memory congestion would presumably bias a citizen toward generating more reasons to vote against the first-listed candidate than reasons to vote against later-listed candidates. This would induce a recency effect, which is a bias toward selecting candidates listed last.[99] But as explained above, recency effects have almost never been observed in studies of voting.

76.   Name order might also influence the votes cast by people who have no information at all about the candidates in a race but nonetheless feel compelled to vote in all races in order to be "good citizens." According to Simon (1957), people are inclined to settle for the first acceptable solution to a problem they confront, especially when they perceive that the costs of making a mistake

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[98] Klayman, J. & Ha, Y. (1987). Confirmation, Disconfirmation, and Information in Hypothesis-Testing. *Psychological Review, 94*, 211-228; Koriat, A., Lichtenstein, S., & Fischhoff, B. (1980). Reasons for Confidence. *Journal of Experimental Psychology: Human Learning and Memory*, *6,* 107-118.

[99] Schwarz, N., Hippler, H. J., & Noelle-Neumann, E. (1992). A Cognitive Model of Response Order Effects in Survey Measurement. In *Autobiographical Memory and the Validity of Retrospective Reports*, ed. Schwarz, N. & Sudman, S. New York: Springer-Verlag; Sudman, S., Bradburn, N. M., & Schwarz, N. (1996). *Thinking About Answers: The Application of Cognitive Processes to Survey Methodology*. San Francisco: Jossey-Bass.

will be minimal.[100] Therefore, if a citizen feels compelled to vote in races regarding which he or she has no substantive basis for choice at all, he or she may simply settle for the first name listed, because no reason is apparent suggesting that the candidate is unacceptable.

77.   All of the above logic can be thought of as attributing name order effects to "information deficit." But name order effects might also occur under very different conditions: when voters are very well informed. Ambivalence towards candidates is not uncommon. For example, one study suggested that about 30% of the electorate hold ambivalent attitudes toward the major American political parties.[101] As would be expected, more ambivalent citizens take longer to crystalize their preferences.[102] Consider a voter who has devoted great effort to learning about candidates competing for President of the United States and has discovered an array of reasons to vote for and against each one. When he or she finally walks into a voting booth, making a choice between the candidates might be very difficult, because their pros and cons nearly balance out. As a result, when under pressure to make a choice and move on with life, name order might again constitute a nudge, yielding a bias toward the first-listed name. Thus, name order effects might occur due to ambivalence, even when voters have access to lots of information about the candidates and even when party affiliations are specifically listed for each candidate. I refer to this as the "ambivalence" explanation.

78.   Thus, there is abundant theoretical justification for the hypothesis that the order of candidates' names on ballots may influence voters' choices in some races. And this expectation is consistent with the abundant scientific evidence that the order in which choices are presented to people often influences their selections. Thus, it would be surprising if such ubiquitous order effects did not occur in voting.

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[100] Simon, H. (1957). *Models of Man*. New York: Wiley.

[101] Basinger, S. J., & Lavine, H. (2005). Ambivalence, information, and electoral choice. *American Political Science Review, 99*, 2, 169-184.

[102] Lavine, H. (2001). The electoral consequences of ambivalence toward presidential candidates. *American Journal of Political Science, 45,* 4, 915-929.

VI. When Name Order Effects Are Expected to Occur Most Strongly

79.   Based upon the information deficit explanation and the ambivalence explanation, it is possible to derive a series of predictions about when name order effects may be greatest in elections. For primacy effects to occur, some voters must find themselves unable, unwilling, ambivalent about, too overwhelmed to, or simply uninterested in reaching an optimal, unbiased decision. Given the amount of preparation necessary to make a truly optimal vote choice, a large number of citizens may not have fully considered all the candidates for all elected offices by Election Day, but order effects will not necessarily be expected among all such individuals.

80.   In this section, I discuss various hypotheses about when we might expect to see a greater primacy effect; the following section sets forth the research confirming these hypotheses. Notably, although the primacy effect may be amplified under certain circumstances, the research discussed above indicates being listed first on a ballot confers a meaningful, statistically significant advantage in elections in a wide array of contexts of circumstances.

81.   Individuals heading to the polls seem more likely to have considered candidates for high-profile contests – such as those for President or Governor – than those for lower profile contests – such as insurance commissioner. High-profile contests tend to receive more news coverage than low profile contests,[103] are more frequently the topic of interpersonal discussions, and involve considerably more contact with voters than do low-profile contests, which should lead to more motivated voting for these contests.[104] Since high- and low-profile contests often occur in the same elections, voters in these contests will not be differentially likely to appear at the polls, so we might therefore expect a larger name order effect in low-profile contests than in high-profile contests.

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[103] Kahn, K. F. (1991). Senate elections in the news: Examining campaign coverage. *Legislative Studies Quarterly, 16,* 349-374.
[104] Boyd, R. W. (1989). The Effects of Primaries and Statewide Races on Voter Turnout. *Journal of Politics*, *51*, 730-739; Campbell, A. (1960). Surge and Decline: A Study of Electoral Change. *Public Opinion Quarterly* 24:397-418; Smith, M. A. (2001). The Contingent Effects of Ballot Initiatives and Candidate Races on Turnout. *American Journal of Political Science, 45*, 700-706.

82.   Voter turnout will most likely be driven by high-profile contests. Hence, in years where voter turnout is higher, we might expect additional turnout to reflect a greater motivation to vote in high-profile contests.[105] But these additional voters may not have fully considered lower profile races (indeed, they may not have entered at all into the decision of whether or not to head to the polls). Given that they have already decided to vote, the costs associated with selecting a candidate in a low-profile contest are likely to be relatively low. Individuals who have not done the necessary research and yet have decided to vote anyway may be more influenced by the ordering of candidates' names for low-profile contests when turnout is relatively high.

83.   When one candidate is likely to beat the others by a large margin, voters may have little incentive to carefully consider and cast their votes. In contrast, for close contests, voters might be motivated to pay special attention to candidate choice.[106] Because of this motivation, candidate name order may influence fewer individuals in close contests than would be the case in electoral blowouts. For some electoral contests, voters are given additional cues that could help in their decision-making. In particular, candidates' party affiliation is often listed on the ballot. Considerable evidence shows that voters use candidate partisanship, in particular, as a heuristic cue in their decision-making.[107] Because partisanship allows voters to make a relatively informed choice without substantial research about the candidates, indecision is presumed to be less common for contests where this is the case.[108] In contrast, non-partisan contests, where party cues are lacking, might lead to particular difficulty for voters. Non-partisan contests may therefore be particularly prone to candidate name order effects.[109]

[105] Boyd, R. W. (1989). The Effects of Primaries and Statewide Races on Voter Turnout. *Journal of Politics*, *51*, 730-739; Smith, M. A. (2001). The Contingent Effects of Ballot Initiatives and Candidate Races on Turnout. *American Journal of Political Science, 45*,700-706.

[107]Larcinese, V. (2007). The Instrumental Voter Goes to the News-Agent: Demand for Information, Marginality and the Media. *Journal of Theoretical Politics,* 19, 249-276.

[107] Popkin, S. L. (1991). *The Reasoning Voter*. Chicago: University of Chicago Press.

[108] Schaffner, B. F., Streb, M., & Wright, G. (2001). Teams Without Uniforms: The Nonpartisan Ballot in State and Local Elections. *Political Research Quarterly, 54*, 7-30.

[109] Ho, D. E. & Imai, K. (2008). Estimating Causal Effects of Ballot Order from a Randomized Natural Experiment: The California Alphabet Lottery, 1978-2002. *Public Opinion Quarterly, 72*, 216-240; Meredith, M, & Salant, Y. (2013). The Causes and Consequences of Ballot Order Effects. *Political Behavior* 35:175-197; Miller, J. M. & Krosnick, J. A. (1998). The Impact of Candidate Name Order on Election Outcomes. *Public Opinion Quarterly, 62*, 291-330.

84.   In light of the information deficit hypothesis, another potential moderator of name order effects might be a voter's level of cognitive skills. The term "cognitive skills" refers to the ensemble of abilities that enable interpreting incoming information, storing it in memory, retrieving the information later, and integrating the retrieved information in order to select between candidates—including the cognitive effort to perform all of these tasks. Even if a person is able to perform the cognitive tasks involved in encoding, storing, retrieving, and integrating information about candidates to choose between them, the individual may not be motivated to do this cognitive work. If that is the case, even after exposure to an array of information, a person may end up relatively uninformed about the candidates. A state of low information might exacerbate the likelihood of manifesting name order effects. Some voters may exert effort when encountering information about candidates because they have a general tendency to process all information carefully.[110] Other voters may exert effort because they care about politics in particular and enjoy thinking carefully about that topic.[111] Whatever the cause, expending more cognitive effort to learn and think about candidates may attenuate name order effects.

VII. When Name Order Effects Have Been Largest

85.   A number of studies have explored when name order effects are greatest in elections and have generated evidence in support of the hypotheses articulated above. For example, I found stronger name order effects for less publicized races, although name order effects are also apparent in highly publicized races.[112] Koppell and Steen (2004) reported the same finding, as did Pasek et al. (2014).[113] Miller and Krosnick (1998) also found name orders to be stronger in races listed at the

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[110] Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42,* 116-131.

[111] Glenn, N. D., & Grimes, M. (1968). Aging, voting and political interest. *American Sociological Review*, *33*, 563-575.

[112] Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly, 62*, 291-330.

[113] Koppell, J. G., & Steen, J. A. (2004). The effects of ballot position on election outcomes. *Journal of Politics, 66*, 267–281.

bottom of the ballot.[114] Miller and Krosnick (1998) found weaker name order effects for races in which an incumbent was running for re-election,[115] who was presumably familiar to many voters, a finding echoed by Chen at al. (2014).[116] Name order effects were also stronger when candidate party affiliations were not listed on the ballot next to their names, a finding echoed by Pasek et al. (2014) and by Chen et al. (2014), though, as Miller and Krosnick (1998) showed, name order effects are present even in races where partisan affiliations are listed alongside candidate names. Miller and Krosnick (1998) also found stronger name order effects among less educated voters, a finding reinforced by Blocksom's (2008) evidence and Koppell and Steen (2004).[117]

86.   As expected, Pasek (2014) found weaker name order effects in races with small margins of victory, when voters might have thought their vote would make a more notable difference in determining the election outcome, though, as Pasek (2014) showed, name order effects are present even in races with small margins of victory. And Pasek (2014) found especially stronger name order effects in low-visibility races with higher turnout, which presumably attracted more voters lacking knowledge about those more obscure races. Likewise, Chen et al. (2014) found stronger name order effects in years when turnout was higher.

87.   Blocksom (2008) reported that name order effects were notably larger in the 2004 Presidential race in Ohio among voters who voted on touch screens (4 percentage points for George W. Bush and for John Kerry) than when voters used paper ballots or punch cards. One possible reason for this is that perhaps touch screen machines encourage voters to vote in all races, whereas other modes of voting, because they are passive, do not prompt voting in all races.

88.   Kim et al. (2015) carried out a hypothetical election in the context of an online survey

[114] This effect reversed when controlling for roll-off in races at the bottom of the ballot.
[115] Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly, 62*, 291-330.
[116] Chen, E., Simonovits, G., Krosnick, J. A., & Pasek, J. (2014). The impact of candidate name order on election outcomes in North Dakota. *Electoral Studies, 35*, 115-122.
[117] Blocksom, D. (2008). *Moderators of the Name-Order Effects: The 2004 Presidential Election in Ohio*. Undergraduate Thesis, Stanford University, Stanford, California.

that illuminated various conditions under which name order effects were larger.[118] In the study,

respondents read about two hypothetical candidates' positions on various issues and then voted for one

of the candidates. Name order was randomly assigned to each respondent. Consistent with the

information deficit hypothesis, the observed primacy effect was larger when respondents had less

information about the candidates,[119] among participants with more limited cognitive skills, and among

respondents who devoted less effort to the candidate evaluation process. And consistent with the

ambivalence hypothesis, name order effects were greater where voters were more conflicted about the

two candidates.

VIII. Why to Expect Name Order Effects in West Virginia Elections

89.   As is apparent from the above review of literature, primacy effects are not only

expected in elections but have been observed consistently across a wide array of studies using various

different methods, providing a strong basis for expecting that such name order effects have occurred

and will occur in West Virginia in upcoming elections, including the 2020 general election. Many of

the same races as have been studied elsewhere have occurred and will occur in West Virginia,

including election of the President of the United States, U.S. Senators, Members of the U.S. House of

Representatives, Governor, West Virginia Legislature, and more.

90.   Furthermore, voters in West Virginia learn about candidates in the same ways as voters

in other states do, including via television, radio, newspapers, magazines, the Internet, campaign visits

by candidates to local meetings, direct mailings, phone calls, door-knocking visits from candidate

representatives, and more. The procedures used to cast votes in West Virginia are the same as are used

in other states, including the presentation of candidate names visually to voters at polling places on

election day and on paper absentee ballots cast before election day. And the locations and appearances

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[118] Kim, N., Krosnick, J. A., & Casasanto, D. (2015). Moderators of candidate name-order effects in Elections: An experiment. *Political Psychology, 36*, 525-542.

[119] Coombs, F. S., Peters, J. G., & Strom, G. S. (1974). Bandwagon, Ballot Position, and Party Effects: An Experiment in Voting Choice. *Experimental Study of Politics, 3*, 31-57; Kamin, L. J. (1958). Ethnic and affiliations of candidates as determinants of voting. *Canadian Journal of Psychology, 12*, 205-212.

of places where voting occurs on election day are similar in West Virginia to those used in other states. Thus, there are numerous similarities of West Virginia to voters in Ohio, California, North Dakota, and elsewhere where primacy effects have been demonstrated in past research.

91.   Furthermore, the participating electorate in West Virginia has been very similar to the participating electorate in the other states where name order effects have been studied: California, New Hampshire, North Dakota, and especially Ohio. Electorate information was ascertained using data from the Current Population Survey (CPS) Voting and Registration Supplement, which has been administered after major national elections for decades.[120] The CPS is a survey conducted monthly by the U.S. Census Bureau, and the results are used to compute the government's monthly unemployment statistic, as well as other vital statistics on the nation's population. The CPS involves interviewing a randomly selected probability sample of about 60,000 American households each month (for a description of the methodology of the analyses reported here, see the Appendix to this report).

92.   The Voting and Registration Supplement (VRS) is a set of questions asked of respondents in the Current Population Survey during November of each election year. Interviewers have administered these questions after respondents answer the core questionnaire that constitutes the heart of the CPS. Not all respondents complete the VRS, meaning that there is what survey researchers call "item non-response" to the VRS questions. Therefore, it is necessary to create statistical weights so that the sample of individuals who answer the VRS resemble the population of interest.

93.   In the present investigation, it was necessary to create weights for each of the five states (West Virginia, California, New Hampshire, North Dakota, and Ohio) separately. The targets used to compute these weights were the distributions of variables measured in the CPS core questionnaire, analyzed using the weights provided by the Census Bureau for those data, which are intended to yield demographics matching what the Bureau calls "population controls," which are demographics

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[120] U.S. Census Bureau. Voting and Registration. Retrieved from https://www.census.gov/topics/public-sector/voting.html.

computed using the previous Decennial Census plus adjustments made based on births, deaths, and migration since the time of that Census.[121]

94.   This analysis indicates a particularly close correspondence of West Virginia voters with voters in Ohio, where name order has been rotated and has been shown to affect voting behavior. For example, the first five columns of numbers in Table 1 show, for the year 2016, the weighted demographics of the five states of interest for people who said during the VRS that they voted in the recent election. The last four columns of numbers show the deviations of West Virginia from each of the four other states. At the bottoms of those four columns are the average absolute value (meaning the algebraic plus or minus sign has been removed) of the deviations in the column above it.[122] Although there are some rare, substantial deviations between West Virginia and one of the other states, the vast majority of the deviations are small, and the averages of the absolute values are small, especially for New Hampshire and Ohio. Table 2 and 3 present equivalent numbers for the 2014 and 2012 elections. There are no consistent differences between the demographics of West Virginia residents and the residents of both New Hampshire and Ohio in a way to suggest very different susceptibility to candidate name order effects.

IX. Testing for Name Order in West Virginia Elections

95.   To investigate the impact of name order in West Virginia, election returns were obtained from the website of the Secretary of State of West Virginia for general elections from 1960 to 2018. Additional election returns and party registration data were obtained from Plaintiff's attorneys, who gathered paper documents from the West Virginia Archives, West Virginia Blue Books, and from electronic documents that Plaintiff's attorneys obtained from the West Virginia Secretary of State.

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[121] Weights were built using the software ANESRake (*see* https://web.stanford.edu/group/iriss/cgi-bin/anesrake/raking.php) according to the principles articulated by DeBell and Krosnick (DeBell, M. & J. Krosnick. (2009). *Computing Weights for American National Election Study Survey Data. ANES Technical Report Series, No. nes012427.* Ann Arbor, MI, and Palo Alto, CA: American National Election Studies. Retrieved from https://pdfs.semanticscholar.org/26b8/ab6c0dd7e50c09c6af32a3c7469b080b63af.pdf).

[122] For dichotomous variables, such as sex, the deviation of only one of the two categories was used to compute the average, since the other category's deviation is identical but oppositely signed.

96.   I analyzed data from all partisan races for federal offices (U.S. President, U.S. Senator, and U.S. House of Representatives) and high-profile state offices (Governor, Attorney General, State Treasurer, Secretary of State, State Auditor, Commissioner of Agriculture, West Virginia State Senate, West Virginia House of Delegates, Justice of the Supreme Court, Circuit Court Judge, and Family Court Judge) that were run in general elections, in which only one candidate could be elected and that included one Democrat and one Republican among the slate of candidates.[123]

97.   A data file was created, with one line for each candidate in each race in each county. Whenever possible, electronic records from the Secretary of State's website were used to obtain needed numbers. However, some elections were missing from the website, so scanned paper records were used in those instances. Quality control checks of the data on the website revealed errors, including incorrect vote counts, incorrect names of candidates, incorrect party affiliations of candidates, and incorrect names of counties. Errors were discovered in a number of ways, but most often by comparing statewide vote totals that were computed by summing across county vote totals for each candidate and election in the electronic file to the statewide vote totals that were reported in the electronic or paper election records. When these totals did not match, county-level vote counts were reviewed to correct any errors that could be detected. Generally, numbers recorded in paper election returns were considered accurate when the two sources disagreed.[124]

98.   The parameters of an ordinary least squares regression equation were estimated predicting the percent of votes earned by Democratic and Republican candidates in each race in each county for U.S. President, U.S. Senator and U.S. House of Representatives, Attorney General, State Treasurer, Secretary of State, State Auditor, Commissioner of Agriculture, West Virginia State Senate, West Virginia House of Delegates, Justice of the Supreme Court, Circuit Court Judge, and Family Court Judge. The predictors included (1) whether the candidate appeared first on the ballot, (2)

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[123] One special election, held in 2011, was also included.
[124] A substantial number of such errors were uncovered. We have identified as many as time constraints allowed, but such errors may still exist in the dataset.

whether the candidate was a Democrat, (3) the interaction between appearing first on the ballot and being a Democrat; (4) the percent of people registered to vote in the county who were registered with the candidate's party, (5) the percent of people registered to vote in the county who were registered with the opposing major party, (6) the percent of the West Virginia vote received by the candidate's party in the U.S. Presidential election prior to the current election, (7) the percent of votes that the candidate's party received in all Ohio races for the U.S. House of Representatives in the concurrent election[125], and (8) whether or not the candidate was an incumbent, defined as whether he or she held the office for which he or she was running at the time of the election.[126] Additional predictors included dummy variables to represent the office being sought, the number of candidates in the race, and the county in which the voters were located.

99.   The parameter estimates shown in Table 4 are consistent with the conclusion that West Virginia candidates gained a 2.43 percentage point advantage on average by being listed first on the ballot for races other than Governor.[127] This conclusion is derived from two coefficients – first, because the Republican party is the omitted category in the dummy variable representing the

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[125] For the special election in 2011, election results from Ohio's 2010 election were used.

[126] Incumbency was coded using statistical software to compare the names of candidates in each election to the name of the public official who held the office on the eve of the election. The software returned a probability of a match between the names. Plaintiff's attorneys reviewed the list and corrected any false positives (an incumbent who should not be flagged as such) or false negatives (a candidate who should be flagged as an incumbent but was not).

[127] The R^2s for these regressions estimate the proportion of variance in the dependent variable explained by the independent variables and are just above .60. Such R^2s are relatively high in social science research, and investigators might be tempted to boast that they attest to the validity of the regression. However, as Cramer said, R^2s "…have a fatal attraction. Although it is generally conceded among insiders that they do not mean a thing, high values are still a source of pride and satisfaction to their authors" (Cramer, J. S. (1987). Mean and variance of R^2 in small and moderate samples. *Journal of Econometrics*, *35(2-3)*, 253-266."; see also Moksony, F. (1990). Small is beautiful. The use and interpretation of R^2 in social research. *Szociológiai Szemle*, Special issue. 130-138; Abelson, R. P. (1985). A variance explanation paradox: When a little is a lot. *Psychological Bulletin, 97*, 129-133). In all issues of the *American Political Science Review* (the leading journal in the field) published between 2013 and 2018, 22 articles reported regressions in which voting behavior or voter opinion was the dependent variable of interest. Two of these articles had maximum R^2s less than .10, one had a maximum R^2 greater than or equal to .10 and less than .20, one had a maximum R^2 greater than or equal to .20 and less than .30, five had maximum R^2s greater than or equal to .30 and less than .40, two had maximum R^2s greater than or equal to .40 and less than .50, two had maximum R^2s greater than or equal to .50 and less than .60, two had maximum R^2s greater than or equal to .60 and less than .70, one had a maximum R^2 greater than or equal to .70 and less than .80, three had maximum R^2s greater than or equal to .80 and less than .90, and two had maximum R^2s greater than or equal to .90. More than 50% of the articles (12) reported at least one R^2s less than .10, and none of the articles reported only R^2s greater than or equal to .50. Thus, many regressions published in this very prestigious journal had R^2s notably less than the ones reported here. But this is not a particularly diagnostic feature of the value of the regressions reported here.

candidate's party, the coefficient for name order represents the Republican candidate's advantage from being listed first (2.256 percentage points on average). The coefficient for the Democratic candidates is this number plus the coefficient for the interaction between the candidate's party and name order (.338 percentage points), yielding an advantage of 2.594 percentage points for Democratic candidates on average. Averaged together, the advantage to being first on the ballot in these West Virginia races (across both parties) is 2.43 percentage points.

100.   Additional parameter estimates were as expected, reinforcing confidence in this analysis. Specifically, the percent of votes received by a candidate increased with (1) the percent of West Virginia votes received by the candidate's party in the most recent presidential election prior to the election, (2) the percent of registered voters who were registered with the candidate's party, and (3) being an incumbent. And the percent of votes received by a candidate decreased with the percent of registered voters who were registered with the opposing party to the candidates. These sensible results reinforce confidence in the validity of this analysis.

101.   Among the predictors in this regression equation is the percent votes received by candidates in concurrent Ohio elections for seats in the U.S. House of Representatives[128] to allow for the possibility that from election to election, the success of candidates in West Virginia elections may be partly a function of general trends in the popularity of the Republican Party and of the Democratic Party nationally. Because West Virginians read newspapers and websites, watch television programs, and listen to radio programs that are read, watched, and heard by others across the country, there is a commonality to information flows. And people across the country have manifested similar trends in party popularity in reaction to major national events, such as the September 11 attacks and the financial crisis of 2008. Therefore, it is useful to allow for the possibility that West Virginia voters might manifest some ups and downs in their inclinations to vote for Republicans or Democrats in all

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[128] For the special election for West Virginia from 2011, 2010 Ohio House results are used.

elections due to such factors.

102.   In order to permit this possibility to emerge in the regression that I conducted, I sought to include among the predictors a measure of the popularity of the parties over time that is unconfounded with candidate name order. That goal restricted my choices of data sources to election outcomes in Ohio, the only state that has rotated name order throughout the time period of elections that I studied in West Virginia with sufficient population size.[129]

103.   Including this variable among the predictors in the regressions I reported did not guarantee that a statistically significant effect of Ohio voting patterns on West Virginia voting patterns would be observed. Rather, including Ohio voting patterns among the predictors allowed me to objectively test whether West Virginia voting patterns resemble Ohio voting patterns in terms of trends over time in party popularity, unconfounded with candidate name order. And indeed, in the regression reported in Table 4, Ohio voting behavior is strongly predictive of voting patterns in West Virginia. The coefficient is positive and statistically significant, which is consistent with the hypothesis that led me to include this variable among the predictors.

104.   Therefore, inclusion of this predictor in the regression has two valuable consequences for my investigation. First, its inclusion enhances confidence that the apparent effect of name order in West Virginia elections (as documented by those regressions) is not a coincidental and illusory reflection of national trends in party popularity. And second, the positive and statistically significant coefficients associated with the Ohio variable show that indeed, as I have argued, there is a similarity of voting behavior in West Virginia and Ohio that justifies making inferences about candidate name order effects in West Virginia based on evidence of candidate name order effects in Ohio.

105.   Further reinforcing this conclusion is the following simple illustration of strong

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[129] Steinglass, S. H., & Scarselli, G. J. (2011). *The Ohio State Constitution: A Reference Guide*. New York, NY: Oxford University Press.

similarity between voters in Ohio and West Virginia in the years of interest, which shows that as Republican candidates' success rose or fell in Ohio over time, similar increases and decreases were observed in West Virginia, thereby justifying the analyses I conducted and the conclusions I drew. In particular, Table 5 shows the percentages of votes won by Republicans in each West Virginia and Ohio presidential election from 1960 to 2018. These numbers show strong similarity in trends over time across the two states: a correlation of .69.

106.   Table 6 displays estimates of the parameters of a regression with the same dependent variable and predictors, but for the Governor's race only. The Governor's race was analyzed separately from all others because it is anomalous. As shown in Figure 1, in races for all other offices, the first-listed candidate won at least 45% of the contests, whereas that was true in only 25% of the Governor's races. Thus, the Governor's race is what statisticians call an "outlier", which can substantially distort the results of regressions such as the one on which I focus here.[130] And indeed, as shown in the regression equation displayed in Table 6, the Governor's race is an outlier in another way. The parameter estimates for that regression equation suggest an average effect of being listed first of about negative eleven percentage points, suggesting that being listed first hurt candidates in the Governor's race substantially. If being listed first has caused gubernatorial candidates in West Virginia to lose substantial numbers of votes, this would again be evidence that name order matters and has affected election outcomes.

107.   Hansen (1995) demonstrated that public approval of the governor is affected by the state's unemployment rate: higher unemployment yields less approval of the governor.[131] When the state unemployment rate was added to the regression equation predicting votes for gubernatorial candidates, along with the appropriate interaction to reflect the expectation that good economic

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[130] Cook, R. Dennis, (Feb 1977). "Detection of Influential Observations in Linear Regression". Technometrics (American Statistical Association) 19 (1): 15–18.
[131] Hansen, S.B. (1995). Life is Not Fair: Governors' Job Performance Ratings and State Economies. *Political Research Quarterly 52, 1,* 167-88;

conditions should enhance the electoral fortunes of the governor's party and bad economic conditions should hurt that party's chances of success, the expected interaction was observed (see Table 7).[132] The coefficient for the unemployment rate was positive, and the coefficient for the interaction between the unemployment rate and the dummy variable representing the match of the incumbent governor's party with the candidate was negative. The estimated effect of being listed first on the ballot was then -2.74 points for Republicans, -4.24 points for Democrats, and -3.49 points on average.

X. How Often Did Name Order Affect Election Outcomes

108.   Name order effects are more important in contemporary elections than earlier in recent history because of an increase in the number of extremely close elections in high-profile, important races. For example, Figure 2 shows the margin of victory in the popular vote in the race for President over years. The best-fitting line displayed in that figure shows that the margins of victory have been shrinking over time. Because close elections are becoming more and more common, name order effects have the potential to influence more and more of their outcomes, thus threatening the operation of legitimate democracy in America.

109.   In fact, based on my studies of the U.S. Presidential elections in 2000 and in 2016, I believe that candidate name order effects have had profound effects on the nation. For example, George W. Bush's razor-thin victory in the State of Florida's count of votes in 2000 caused Mr. Bush to win that election. And Mr. Bush was listed first on every ballot in Florida in that year. Given the size of the candidate name order effect that I have observed in states that rotated name order in that election, I believe that the nation would have had a different President in 2001 had the law in Florida rotated name order.

110.   A similarly striking pattern of data appeared in my study of the 2016 U.S. Presidential

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[132] Unemployment data from 1960 to 1972 came from the Manpower Report of the President and the Employment and Training Report of the President. Data from 1976 to 2018 came from the website of the US Bureau of Labor Statistics.

election.[133] President Trump was listed first on all ballots in almost all of the states in which he won by a razor-thin margin. And my study of voting in New Hampshire shows that name order affected voting behavior in that race, as in nearly all other races we have studied. The magnitude of the name order effect in New Hampshire was substantial enough to suggest that Mr. Trump would probably not have been elected if those states had varied name order across voters.

111.   To illustrate the prevalence of close elections in West Virginia that would likely have been reversed if name order had been rotated, I implemented a series of calculations based on my estimate of the primacy effect in West Virginia. As set forth above, I estimated that candidates who were listed first on West Virginia ballots generally gained a 2.425 percentage point advantage. This represents the percent of votes a candidate listed first would expect to gain at the expense of his/her competition, who would lose that amount.

112.   Therefore, a reasonable prediction is that the outcome of every race in which the winner was listed first on all ballots and that was won by a margin of less than 4.85 percentage points (i.e. twice the average vote share gain of 2.425 percentage points) would have had a different outcome if the other major party had been listed first instead. For example, imagine a race in which the Democratic candidate was listed first and received 52 percent of the votes, while the Republican candidate received only 48 percent of the votes. Had the Republican candidate been listed first instead, the Democratic candidate would have received 2.425 percentage points fewer votes, yielding 49.575 percent total, and the Republican candidate would have gained 2.425 percentage points, yielding 50.425 percent total. Therefore, changing the name order would have changed who won the race.

113.   This logic points to races in my West Virginia dataset in which the outcome would have been reversed if the order of the major party candidates had been reversed. This dataset included all

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[133] In noting these two examples, I am not making a partisan statement. If Al Gore had been listed first on all ballots in Florida in 2000 and had won that election according to the State's vote count, I would view that turn of events in the same way that I view Mr. Bush's and Mr. Trump's victories.

election races that could only be won by one candidate, run between 1960 and 2018, with at least two candidates, including at least one Democrat and one Republican, excluding races for Governor.

114.   As shown in Table 8, the outcomes of at least 105 elections (some won by Republicans and some won by Democrats) would have changed if the order of candidate names had been varied across voters. The 105 elections that I have identified include races for the following offices: U.S. President, United States Senator, United States Representative, West Virginia State Senator, West Virginia House of Delegates, Secretary of State, Attorney General, Commissioner of Agriculture, and Circuit Court Judge.

115.   This list does not include the many other West Virginia elections that would likely have had different outcomes under name order rotation that were not in the dataset I examined. Table 8 therefore understates the impact of name order effects on democracy in West Virginia.

116.   I did one additional analysis to illustrate the impact that candidate name order would have had on West Virginia election outcomes if the effect of name order were larger or smaller than the effect size used to generate Table 8. Figure 3 displays the cumulative number of non-Gubernatorial elections in which the first-listed candidate won by a specified margin. The x-axis shows the actual margin of victory, and the y-axis shows the number of election results decided within that margin. For example, 105 races were decided within the 4.85 percentage points margin of victory used above (indicated by the dashed line).

117.   Figure 3 shows how many election outcomes would likely have been different if the estimated primacy effect were greater than the average effect I estimated. For example, if the primacy effect was larger than what I estimated, the dashed line would move to the right, implying that a correspondingly larger number of outcomes would change.

118.   In short, although reversing candidate name order in past West Virginia elections would not have reversed all election outcomes, variation would almost certainly have reversed the outcomes of a good number of past West Virginia elections, including important ones for the state.

XI. Name Order Rotation as a Remedy

119.   In light of the fact that name order affects the balance of votes cast in elections, legislators in some states have chosen to take a step toward assuring that election outcomes are fair and unbiased by ordering the implementation of a system of name ordering that advantages no candidate over any other candidate.

120.   For example, Ohio election law requires that the order of all candidate names be rotated from precinct to precinct, such that each candidate is listed first in an equal number of precincts. Thus, no candidate has the privilege of a first-place listing any more often than any other.[134]

121.   North Dakota, Montana, New Hampshire, and Wyoming have been carrying out similar procedures, rotating from precinct to precinct. In all state-wide races in California, name order has been rotated across Assembly districts in a similar fashion.[135] In Kansas, name order rotation for state and national offices has been done by precinct in the five largest counties and from county to county in the remainder of the state.[136] In Idaho, rotation has been done from ballot to ballot in precincts that use paper ballots and from precinct to precinct in those that use punch cards or optical scanning devices. In Kentucky, candidates for offices voted on by the whole state have been arranged alphabetically and then rotated by Congressional district.[137] In Iowa, in all non-partisan races and in all partisan races in

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[134]The discussion of name order laws here focuses on general elections; state laws regarding primaries are substantially more complex.

[135]A variety of procedures have been used in California races not run in the entire state. Names of candidates competing for the U.S. House of Representative and the State Board of Equalization are rotated by Assembly districts. State Senators and members of the State Assembly are not rotated unless the districts in which they are running encompass more than one county, in which case each county draws its own random order of the letters of the alphabet and orders candidate names according to that random alphabet. For offices voted on throughout a county, candidates' names are rotated by Assembly district if there are five or more Assembly districts within the county. If there are four or fewer Assembly districts within a county, candidate names are rotated by supervisorial districts. If a race is run in only a portion of one county, candidate names are listed according to the random alphabet drawn by the Secretary of State. Candidates for Justice of the Supreme Court and Court of Appeals of California are arranged according to the random alphabet and are not rotated at all.

[136] For county and local races, rotation is required in large cities, but no statute mandates precisely how the rotation is to be carried out. No rotation is required for races in what the state calls "3rd class" cities, which comprise over 500 of the 626 cities in the State.

[137] For all other races, candidate names are arranged randomly by lot by the Secretary of State's office and are not rotated.

which two or more candidates are to be elected, candidates have been rotated by precinct.[138]

122.   Four additional states have procedures that mimic the effect of rotating candidate names. In New Jersey, Illinois, and Arkansas, a separate random order of candidate names has been created in each county, and in Alaska, each election district has created its own random ordering of candidates.[139]

123.   The states listed above rotate name order in some or all of their elections. The majority of states have yet to take steps to eliminate any advantage of one candidate over another due to name ordering. In those states, a wide range of alternative systems are used for ordering names on a ballot.[140]

124.   What could account for this diversity of approaches? One possibility is that many politicians believe name order does affect election outcomes, and the states vary in terms of whether they want to assure fairness or bias. States that require name rotation presumably seek to eliminate any potential for advantage. States that use one random or alphabetical ordering take a step in that direction but nonetheless systematically advantage some candidates over others, because one candidate ends up being listed first on all ballots.

125.   A fair remedy for the problem of name order effects would be to rotate the order of candidate names across voters in some manner, so that each candidate is listed first on an equal number of ballots. Described in general terms, name rotation has been implemented in a number of states in a series of common steps. The first step is to generate one order of names (called "order one") using a specified rule. In some states, such as Ohio, names have been listed alphabetically in order one. But it would be preferable to list the names in a random order (created by lottery) in "order one", the way

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[138] No rotation is required in partisan offices in which only one candidate is to be elected. For these offices, the names are arranged according to political party. Iowa only recognizes the Republican, Democratic, and Green Parties. These are the first three parties listed on the ballot for partisan offices when only one candidate is to be elected. Other than this rule, the ordering of the parties is left to the discretion of the County Auditor for each County in Iowa in which the race is held.

[139] In Illinois, within the random order established by each county, Democratic and Republican candidates are always listed before third-party candidates, which are always listed before independents.

[140] Krosnick, J. A., Miller, J. M., & Tichy, M. P. (2004). An unrecognized need for ballot reform: Effects of candidate name order. In A. N. Crigler, M. R. Just, and E. J. McCaffery (Eds.), Rethinking the vote: The politics and prospects of American election reform. New York, NY: Oxford University Press.

California does.

126.   Then, a series of other name orders are generated using a second rule. The second rule usually dictates that the candidate name appearing first in "order one" is moved to the bottom of the list and appears last in "order two." The candidate name that appears second in "order one" appears first in "order two." For races with three or more candidates, the names of the other candidates move up one position from "order one" to "order two" and the procedure is repeated as many times as needed. In Ohio, for instance, the number of total name orders generated equals the number of candidates running in the race. In the end, each candidate name appears in each position in one and only one order.

127.   Step three puts the geographical units (e.g. precincts, towns) in an order determined by a particular rule (e.g., Ohio orders precincts in a county according to city size, date of precinct creation, and precinct name spelling). Step four is the assignment of name orders to units. This usually begins by assigning name order one to the first unit, order two to the second unit, and so on, cycling back as many times as is necessary to assign a name order to every unit.

128.   If this method is used in future elections, it is critical that the system be implemented in a way that allows observers to confirm that the name ordering was implemented as prescribed by law. One might imagine that a desirable remedy would be to have touch screen voting machines or paper ballots rotate name order from voter to voter, rather than from precinct to precinct. Because monitoring this process to assure proper implementation is difficult, rotating across geographic units, such as precincts, has practical advantages. That is, it is advantageous to assign all voters in a precinct to see candidate names in the same order, so spot-checking of implementation can be done manageably.

Conclusion

129.   In conclusion, primacy effects have appeared in almost every study of candidate name order effects. There is every reason to believe that this ubiquitous phenomenon occurs in West Virginia as well. The West Virginia statute, as defined by W. Va. Code § 3-6-2(c)(3), mandates that the party whose candidate for president received the highest number of votes in the last preceding presidential

election be listed first on the ballot for all partisan offices statewide. As a result of that state law mandate, those candidates listed first have received and will receive the benefit of the primacy effect.

130.   I provide this declaration under penalty of perjury at Portola Valley, California on this the 19th day of April, 2020.

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Jon A. Krosnick

Appendix

Computation of the Figures in Tables 1, 2, 3 Using Data From

the Current Population Survey (CPS)

OVERVIEW

1.   The CPS is a monthly survey of households that provides data on employment and

demographic characteristics of household members. The CPS uses rotating samples of

households. Randomly selected housing units are surveyed every month for four months, are

not surveyed for the next eight months, and then are surveyed again every month for four

months. Housing units are weighted to account for probability of selection and unit non-

response. Each household member is weighted to account for: (1) probability of household

selection; (2) unit non-response; (3) deviations from known population distributions of

demographic characteristics.

Demographic and labor force data are collected during the monthly CPS interviews. One

knowledgeable adult in a household (called the household informant) provides information about

the age, sex, marital status, educational attainment, race, ethnicity, veteran and current armed

forces statuses, citizenship status, and relationship to the person who owns or rents the home for

all people who usually live in the housing unit. Although CPS interviewers attempt to obtain

labor force data from each household member, data for approximately half of these members are

provided by proxies.

Some CPS interviews are conducted face-to-face, and others are conducted via telephone.

Unless the household informant specifically requests a telephone interview, every informant for

a household that has not previously completed a CPS interview participates in a face-to-face

interview.

CPS NOVEMBER SURVEY

Each of the 2012, 2014, and 2016 November CPS surveys included a demographics questionnaire, a labor force questionnaire, and a Voting and Registration Use Supplement (VRUS). Informants in households participating in a CPS interview for the first time answered questions in the demographics questionnaire about the age, sex, marital status, educational attainment, race, ethnicity, veteran and current armed forces statuses, citizenship status, and relationship to the person who owns or rents the home for all people who usually live in the housing unit. Informants in households that previously participated in a CPS interview answered questions about any changes to the people living in the household. Household members or household informants completing the labor force questionnaire answered questions about work-related activities during a target week. Household members or household informants completing the VRUS questionnaire answered questions about turnout, registration, and length of stay at current residence.

DATA

Most of the data analyzed in this report uses information collected from household informants. Household informants first answer questions about the people residing in, and relations among the people residing in, the household. Answers to these questions are used to build a household roster. The following questions are used to build the roster (which is then used to determine the household size):

(What are the names of all persons living or staying here? / What is the name of the next person)?

Is this (name of person talking about)'s usual place of residence?
1. Yes
2. No

3. Proxy

Does (name of person talking about) have a usual place of residence elsewhere?
    1. Yes
    2. No

Are there any other persons 15 years old or older now living or staying there? (Who have not been listed.)
    1. Yes
    2. No

How many other?

I have listed . . . READ NAMES. Have I missed any babies or small children?
    1. Yes
    2. No

Have I missed anyone who usually lives here but is away now -traveling, at school, or in a hospital?
    1.Yes
    2. No

Have I missed any lodgers, boarders, or persons you employ who live here?
    1. Yes
    2. No

Have I missed anyone else staying here?
    1. Yes
    2. No

What is the name of the person or one of the persons who owns or rents that home?

How (are / is) (name/you) related to (reference person's name/you)?
    42. Opposite-sex Spouse (Husband/Wife)
    43. Opposite-sex Unmarried Partner
    44. Same-sex Spouse (Husband/Wife)
    45. Same-sex Unmarried Partner
    46. Child
    47. Grandchild
    48. Parent (Mother/Father)
    49. Brother/Sister
    50. Other relative (Aunt, Cousin, Nephew, Mother-in-law, etc.)
    51. Foster Child
    52. Housemate/Roommate
    53. Roomer/Boarder
    54. Other nonrelative

Earlier you said that (name of person talking about) (was/were) not related to (reference person's name/you). (Are / Is) (name of person talking about) related to anyone else in this household?
>1. Yes
>2. No

Who (are / is) (name of person talking about) related to?
PROBE: Anyone else?

Ask if necessary: Is (name's/your) parent a member of this household?

(Are / Is) (name of person talking about) (your / mother's name) biological, step, or adopted child?
>1. Biological
>2. Step
>3. Adopted

Ask if necessary: Is (name's/your) other parent a member of this household?

(Are / Is) (name of person talking about) (your / father's name) biological, step, or adopted child?
>1. Biological
>2. Step
>3. Adopted

(REF_FNAME ^REF_LNAME's) parent is also (name of person talking about)'s parent, is that correct?
>1. Yes
>2. No

Household informants also answer several questions about the household and each household member. The data analyzed in this report are based on informants' answers to the following questions in the demographics, labor force, and VRUS questionnaires:

Sex

What is (name of person talking about)'s sex?
>Male
>Female

Age

What is (name's / your) date of birth?

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As of last week, that would make (name / you (approximately (AGE)/ less than 1 / over 98 / AGE) years old. Is that correct?
>1. Yes
>2. No

Even though you don't know (name's / your) exact birthdate, what is your best guess as to how old (you / he / she) (was / were) on (your / his / her) last birthday?

Race
>I am going to read you a list of five race categories. You may choose one or more races. For this survey, Hispanic origin is not a race. (Are/Is) (NAME/you) White; Black or African American; American Indian or Alaska Native; Asian; OR Native Hawaiian or Other Pacific Islander?
>>1. White
>>2. Black or African American
>>3. American Indian or Alaska Native
>>4. Asian
>>5. Native Hawaiian or Other Pacific Islander
>>6. Other

Ethnicity
>(Is / Are) (name / you) of Hispanic, Latino, or Spanish origin?
>>1. Yes
>>2. No

Marriage
>(Is / Are) (name / you) now married, widowed, divorced, separated or never married?
>>1. Married - Spouse PRESENT
>>2. Married - Spouse ABSENT
>>3. Widowed
>>4. Divorced
>>5. Separated
>>6. Never married

Education
>What is the highest level of school (name / you) (has /have) completed or the highest degree (name / you) (has /have) received?
>>31. Less than 1st grade
>>32. 1st, 2nd, 3rd or 4th grade
>>33. 5th or 6th grade
>>34. 7th or 8th grade
>>35. 9th grade
>>36. 10th grade
>>37. 11th grade
>>38. 12th grade NO DIPLOMA

39. HIGH SCHOOL GRADUATE- high school DIPLOMA or the equivalent (For example: GED)
40. Some college but no degree
41. Associate degree in college - Occupational/vocational program
42. Associate degree in college -- Academic program
43. Bachelor's degree (For example: BA, AB, BS)
44. Master's degree (For example: MA, MS, MEng, MEd, MSW, MBA)
45. Professional School Degree (For example: MD,DDS,DVM,LLB,JD)
46. Doctorate degree (For example: PhD, EdD)

Household income
Which category represents the total combined income of all members of this FAMILY during the past 12 months?

This includes money from jobs, net income from business, farm or rent, pensions, dividends, interest, social security payments and any other money income received by members of this family who are 15 years of age or older?
1. Less than $5,000
2. 5,000 to 7,499
3. 7,500 to 9,999
4. 10,000 to 12,499
5. 12,500 to 14,999
6. 15,000 to 19,999
7. 20,000 to 24,999
8. 25,000 to 29,999
9. 30,000 to 34,999
10. 35,000 to 39,999
11. 40,000 to 49,999
12. 50,000 to 59,999
13. 60,000 to 74,999
14. 75,000 to 99,999
15. 100,000 to 149,000
16. 150,000 to more

Owns or is buying home
Are your living quarters…
1. Owned or being bought by a household member
2. Rented for cash
3. Occupied without payment of cash rent

Ever on active duty
Did you ever serve on active duty in the U.S. armed forces?
1. Yes
2. No

Telephone in housing unit
Is there a telephone in this house/apartment?
1. Yes
2. No

The variable used to measure employment status comes from answers to a series of

questions in the labor force questionnaire. Those questions are:

(THE WEEK BEFORE LAST/LAST WEEK), did (name / you) do ANY work for (pay / either pay or profit)?
1. Yes
2. No
3. Retired
4. Disabled
5. Unable to work

(THE WEEK BEFORE LAST/LAST WEEK), (in addition to the business) (name / you) have a job either full or part time? Include any job from which (name / you) (was / were) temporarily absent.
1. Yes
2. No
3. Retired
4. Disabled
5. Unable to Work

(THE WEEK BEFORE LAST/LAST WEEK), (was / were) (name / you) on layoff from a job?
1. Yes
2. No
3. Retired
4. Disabled
5. Unable to work

(Has / Have / Has) (name / you) been doing anything to find work during the last 4 weeks?
1. Yes
2. No
3. Retired
4. Disabled
5. Unable to work

(Was / Were) (name / you) employed by government, by a private company, a nonprofit organization, or (was / were) (he / she / you) self -(or working in the family business?)?
1. Government

2. Private-for-profit company
3. Non-profit organization including tax exempt and charitable organizations
4. Self-employed
5. Working in the family business

(Is / Was) this business incorporated?
1. Yes
2. No

The variable used to identify the state in which the household is located is based on the sampled address, which is confirmed by the household respondent's answer to the following question:

I have your address listed as ... Is that your exact address?
1. Same address
2. Address has changed
3. Incorrect address previously recorded
4. Moved, new address

Categories within several CPS variables have been grouped for the analyses reported below. These variables included age, race, marital status, education, employment status, household income, household size, and owns or is buying home. The groups created from these variables are reflected in the tables reported below.

RESPONDENTS

Sample. All analyses use only CPS data for respondents who were at least 18 years old at the time of the survey.[141]

VRUS versus non-VRUS respondents. Some respondents completed the VRUS while others did not. The first VRUS question respondents answered was:

In any election, some people are not able to vote because they are sick or busy or have some other reason, and others do not want to vote. Did (you/name) vote in the election held on ELECTION DATE?

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[141] A respondent refers to any household member about whom data were collected from either the household member himself or herself, or from the household respondent.

Eligible respondents (i.e., at least 18 years old and a citizen of the United States) are classified into one of the following five categories:

1. Yes
2. No
3. Don't know
4. Refused
5. No response

The "No response" category includes respondents for whom the first question was not asked "because the administration of the survey was stopped for some reason".[142] These categories are used to identify respondents who completed the VRUS (VRUS respondents) and those who did not complete the VRUS (non-VRUS respondents). VRUS respondents include all eligible respondents not classified as "No response", and non-VRUS respondents include all eligible respondents who were classified as "No response".

Weighting. Analyses using an entire CPS sample (either the national or a state sample) use data that have been weighting using person weights included in the microdata file. First-stage ratio estimation for constructing these weights account for unequal probabilities of household selection due to a subset of Primary Sampling Units (PSUs) being included in the survey, and distributions of Black versus non-Black households in PSUs that: (1) are not representative of the distribution in the PSU, and (2) are in states with substantial numbers of Black households. Second-stage ratio estimation improves the extent to which the sample represents distributions of age, sex, race, ethnicity, and state of residence in the total sample, and distributions of age and sex within states.

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[142] See File, Thom. (July 2015). Who votes? Congressional elections and the American electorate: 1978-2014. United States Census Bureau. Report P20-577. Available at https://www.census.gov/library/publications/2015/demo/p20-577.html.

Different weights are used for analyses involving only VRUS respondents. These weights were constructed to increase the representativeness of respondents in a state who completed the VRUS to that state's total population distributions of: sex, age, race, ethnicity, marital status, education, employment status, household income, household size, home ownership, active duty service, metropolitan status, and presence of a telephone in the housing unit (as determined by the total CPS data for that state). Post-stratification adjustments to the person weights included in the CPS microdata file were conducted using every variable for which the distribution of respondents completing the VRUS differed from the distribution for the total state population.[143] If initial post-stratification resulted in different distributions for VRUS respondents compared to the total state among variables that were not included in the initial post-stratification, a subsequent iteration of post-stratification adjustment was conducted using the variables with the different distributions. Additional iterations of post-stratification adjustments were conducted until the percentage of VRUS respondents in each category differed from the total state population in that category by less than .5 percentage points.[144]

ANALYSES

Reported in Tables 1, 2, and 3 are comparisons of the respondents in West Virginia who voted according to the 2016, 2014, and 2012 VRUSs to the respondents in the CPS from California, New Hampshire, North Dakota, and Ohio who voted. These comparisons involve sex, age, race, ethnicity, marital status, education, employment status, household income, household size, home ownership, active duty service, metropolitan status, and presence of a telephone in the housing unit. The VRUS respondents from each state have been weighted to resemble the entire

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[143] Different distributions are those in which the percentage of VRUS respondents in one category differed from the percentage of the entire state in that category by at least .5 percentage points.
[144] All post-stratification adjustments were conducted using the SPSS rake utility.

state populations in terms of sex, age, race, ethnicity, marital status, education, employment status, household income, household size, home ownership, active duty service, metropolitan status, and presence of a telephone in the housing unit. Also in the tables are the absolute percentage point differences between West Virginia and the comparison states, averaged across all categories of variables within each comparison state. For variables with only two categories (e.g., sex), the absolute percentage point difference for only one category contributed to these averages.

Table 1. Demographics of November 2016 CPS respondents in West Virginia and 2016 CPS respondents in select states for respondents who reported turning out to vote in the 2016 general election when completing the CPS Voting Supplement

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
Sex	Male	46.2%	47.2%	46.7%	50.1%	45.6%	-1.0%	-.5%	-3.9%	.6%
	Female	53.8%	52.8%	53.3%	49.9%	54.4%	1.0%	.5%	3.9%	-.6%
Age	18-29	13.8%	18.2%	14.0%	20.5%	15.4%	-4.4%	-.2%	-6.7%	-1.6%
	30-44	20.3%	22.7%	21.1%	24.1%	20.6%	-2.4%	-.8%	-3.8%	-.3%
	45-59	24.9%	26.9%	30.1%	27.9%	28.8%	-2.0%	-5.2%	-3.0%	-3.9%
	60+	41.0%	32.2%	34.8%	27.5%	35.2%	8.8%	6.2+	13.5%	5.8%
Race	White only	94.2%	75.7%	96.7%	96.3%	85.3%	18.5%	-2.5%	-2.1%	8.9%
	Black only	3.5%	5.9%	.9%	.8%	12.1%	-2.4%	2.6%	2.7%	-8.6%
	All other	2.3%	18.4%	2.5%	2.9%	2.6%	-16.1%	-.2%	-.6%	-.3%
Ethnicity	Hispanic	.5%	23.9%	1.0%	1.2%	1.9%	-23.4%	-.5%	-.7%	-1.4%
	Not Hispanic	99.5%	76.1%	99.0%	98.8%	98.1%	23.4%	.5%	.7%	1.4%
Marital Status	Married	63.0%	55.8%	60.5%	67.0%	59.8%	7.2%	2.5%	-4.0%	3.2%
	Widowed, separated, divorced	20.7%	16.7%	19.2%	13.6%	19.5%	4.0%	1.5%	7.1%	1.2%
	Never married	16.3%	27.5%	20.2%	19.4%	20.7%	-11.2%	-3.9%	-3.1%	-4.4%
Education	No HS diploma	6.0%	6.6%	4.4%	4.3%	5.6%	-.6%	1.6%	1.7%	.4%
	HS graduate or equivalent	36.8%	19.1%	26.6%	24.9%	32.1%	17.7%	10.2%	11.9%	4.7%
	Some college	27.2%	32.1%	27.7%	34.2%	28.8%	-4.9%	-.5%	-7.0%	-1.6%
	BA or above	30.0%	42.2%	41.2%	36.7%	33.5%	-12.2%	-11.2%	-6.7%	-3.5%
Employment status	Working	53.5%	62.5%	67.6%	74.8%	62.6%	-9.0%	-14.1%	-21.3%	-9.1%
	Retired	28.8%	20.9%	20.4%	15.4%	24.7%	7.9%	8.4%	13.4%	4.1%
	All other	17.7%	16.5%	12.0%	9.8%	12.7%	1.2%	5.7%	7.9%	5.0%
Household income	Less than $25,000	21.2%	12.2%	13.1%	11.5%	15.3%	9.0%	8.1%	9.7%	5.9%
	$25,000 to $39,999	20.2%	11.7%	12.3%	13.3%	15.2%	8.5%	7.9%	6.9%	5.0%
	$40,000 to $59,999	17.6%	13.5%	17.0%	16.5%	18.0%	4.1%	.6%	1.1%	-.4%

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
	$60,000 to $99,999	24.0%	24.1%	24.3%	27.2%	26.7%	-.1%	-.3%	-3.2%	-2.7%
	$100,000 or more	17.0%	38.6%	33.3%	31.5%	24.8%	-21.6%	-16.3%	-14.5%	-7.8%
Household size	One person	14.7%	12.7%	15.4%	13.6%	16.0%	2.0%	-.7%	1.1%	-1.3%
	Two people	45.4%	35.0%	42.7%	45.5%	36.7%	10.4%	2.7%	-.1%	8.7%
	Three people	20.9%	19.6%	15.3%	14.7%	18.7%	1.3%	5.6%	6.2%	2.2%
	Four or more people	19.0%	32.7%	26.6%	26.2%	28.6%	-13.7%	-7.6%	-7.2%	-9.6%
Owns or is buying home	No	16.2%	32.0%	22.3%	24.3%	21.8%	-15.8%	-6.1%	-8.1%	-5.6%
	Yes	83.8%	68.0%	77.7%	75.7%	78.2%	15.8%	6.1%	8.1%	5.6%
Ever on active duty	Yes	10.0%	8.0%	10.6%	8.3%	9.4%	2.0%	-.6%	1.7%	.6%
	No	90.0%	92.0%	89.4%	91.7%	90.6%	-2.0%	.6%	-1.7%	-.6%
Metropolitan status	Metropolitan	57.7%	96.1%	63.3%	53.2%	77.2%	-38.4%	-5.6%	4.5%	-19.5%
	Not metropolitan	42.3%	3.9%	36.7%	46.8%	22.8%	38.4%	5.6%	-4.5%	19.5%
Telephone in housing unit	Yes	99.1%	97.0%	98.9%	97.9%	98.1%	2.1%	.2%	1.2%	1.0%
	No	.9%	3.0%	1.1%	2.1%	1.9%	-2.1%	-.2%	-1.2%	-1.0%
Average absolute difference							8.9%	4.4%	5.8%	4.3%
N		1,162	4,229	915	952	1,656				

NOTE: Respondents who completed the CPS November supplement have been weighted to represent within state populations in distributions of sex, age, race, ethnicity, marital status, education, employment status, household income, household size, owns or is buying home, ever on active duty, metropolitan status, and telephone in housing unit.

Table 2. Demographics of November 2014 CPS respondents in West Virginia and 2014 CPS respondents in select states for respondents who reported turning out to vote in the 2016 general election when completing the CPS Voting Supplement

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
Sex	Male	49.0%	47.3%	48.3%	49.5%	47.8%	1.7%	.7%	-.5%	1.2%
	Female	51.0%	52.7%	51.7%	50.5%	52.2%	-1.7%	-.7%	.5%	-1.2%
Age	18-29	10.3%	11.0%	8.2%	15.0%	8.9%	-.7%	2.1%	-4.7%	1.4%
	30-44	16.4%	19.4%	19.1%	20.5%	21.4%	-3.0%	-2.7%	-4.1%	-5.0%
	45-59	30.2%	29.9%	32.0%	27.3%	27.6%	.3%	-1.8%	2.9%	2.6%
	60+	43.1%	39.6%	40.7%	37.1%	42.0%	3.5%	2.4+	6.0%	1.1%
Race	White only	97.8%	78.9%	96.3%	95.7%	85.8%	18.9%	1.5%	2.1%	12.0%
	Black only	1.0%	5.9%	.7%	.7%	11.9%	-4.9%	.3%	.3%	-10.9%
	All other	1.2%	15.3%	3.0%	3.7%	2.3%	-14.1%	-1.8%	-2.5%	-1.1%
Ethnicity	Hispanic	.6%	19.4%	2.0%	.6%	1.1%	-18.8%	-1.4%	.0%	-.5%
	Not Hispanic	99.4%	80.6%	98.0%	99.4%	98.9%	18.8%	1.4%	.0%	.5%
Marital Status	Married	69.7%	61.5%	68.3%	69.0%	64.3%	8.2%	1.4%	.7%	5.4%
	Widowed, separated, divorced	18.5%	19.0%	17.1%	13.9%	21.0%	-.5%	1.4%	4.6%	-2.5%
	Never married	11.9%	19.5%	14.6%	17.1%	14.7%	-7.6%	-2.7%	-5.2%	-2.8%
Education	No HS diploma	8.9%	6.5%	2.5%	3.7%	6.2%	2.4%	6.4%	5.2%	2.7%
	HS graduate or equivalent	37.2%	16.4%	22.1%	23.7%	31.6%	20.8%	15.1%	13.5%	5.6%
	Some college	24.9%	32.4%	26.5%	36.6%	28.6%	-7.5%	-1.6%	-11.7%	-3.7%
	BA or above	28.9%	44.7%	48.8%	36.0%	33.7%	-15.8%	-19.9%	-7.1%	-4.8%
Employment status	Working	51.9%	57.9%	66.8%	70.0%	59.1%	-6.0%	-14.9%	-18.1%	-7.2%
	Retired	29.6%	25.7%	23.5%	22.4%	29.3%	3.9%	6.1%	7.2%	.3%
	All other	18.5%	16.4%	9.7%	7.6%	11.6%	2.1%	8.8%	10.9%	6.9%
Household income	Less than $25,000	17.2%	11.9%	12.0%	13.7%	15.5%	5.3%	5.2%	3.5%	1.7%
	$25,000 to $39,999	18.5%	15.0%	11.1%	14.1%	17.2%	3.5%	7.4%	4.4%	1.3%

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
	$40,000 to $59,999	21.6%	14.3%	16.8%	13.8%	19.6%	7.3%	4.8%	7.8%	2.0%
	$60,000 to $99,999	26.5%	23.0%	26.5%	28.1%	27.9%	3.5%	.0%	-1.6%	-1.4%
	$100,000 or more	16.2%	35.8%	33.6%	30.3%	19.9%	-19.6%	-17.4%	-14.1%	-3.7%
Household size	One person	13.8%	15.3%	13.8%	14.3%	17.3%	-1.5%	.0%	-.5%	-3.5%
	Two people	45.3%	36.1%	45.8%	47.0%	45.2%	9.2%	-.5%	-1.7%	.1%
	Three people	20.2%	15.3%	16.6%	16.4%	15.7%	4.9%	3.6%	3.8%	4.5%
	Four or more people	20.7%	33.3%	23.8%	22.2%	21.9%	-12.6%	-3.1%	-1.5%	-1.2%
Owns or is buying home	No	11.9%	25.6%	13.5%	17.8%	14.0%	-13.7%	-1.6%	-5.9%	-2.1%
	Yes	88.1%	74.4%	86.5%	82.2%	86.0%	13.7%	1.6%	5.9%	2.1%
Ever on active duty	Yes	13.7%	9.6%	13.7%	10.9%	11.5%	4.1%	.0%	2.8%	2.2%
	No	86.3%	90.4%	86.3%	89.1%	88.5%	-4.1%	.0%	-2.8%	-2.2%
Metropolitan status	Metropolitan	55.9%	96.4%	63.7%	50.3%	75.6%	-40.5%	-7.8%	5.6%	-19.7%
	Not metropolitan	44.1%	3.6%	36.3%	49.7%	24.4%	40.5%	7.8%	-5.6%	19.7%
Telephone in housing unit	Yes	97.7%	97.3%	99.2%	98.2%	99.1%	.4%	-1.5%	-.5%	-1.4%
	No	2.3%	2.7%	.8%	1.8%	.9%	-.4%	1.5%	.5%	1.4%
Average absolute difference							8.3%	4.6%	5.0%	3.8%
N		687	2,826	858	725	1,090				

NOTE: Respondents who completed the CPS November supplement have been weighted to represent within state populations in distributions of sex, age, race, ethnicity, marital status, education, employment status, household income, household size, owns or is buying home, ever on active duty, metropolitan status, and telephone in housing unit.

Table 3. Demographics of November 2012 CPS respondents in West Virginia and 2012 CPS respondents in select states for respondents who reported turning out to vote in the 2016 general election when completing the CPS Voting Supplement.

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
Sex	Male	47.4%	47.0%	46.8%	50.3%	45.6%	.4%	.6%	-2.9%	1.8%
	Female	52.6%	53.0%	53.2%	49.7%	54.4%	-.4%	-.6%	2.9%	-1.8%
Age	18-29	9.0%	18.5%	16.0%	18.0%	17.6%	-9.5%	-7.0%	-9.0%	-8.6%
	30-44	22.1%	23.3%	20.1%	23.6%	20.8%	-1.2%	2.0%	-1.5%	1.3%
	45-59	25.6%	27.5%	35.0%	32.4%	31.0%	-1.9%	-9.4%	-6.8%	-5.4%
	60+	43.3%	30.7%	28.9%	26.0%	30.6%	12.6%	14.4%	17.3%	12.7%
Race	White only	96.4%	77.2%	97.3%	92.1%	84.3%	19.2%	-.9%	4.3%	12.1%
	Black only	2.8%	7.9%	1.0%	.7%	13.1%	-5.1%	1.8%	2.1%	-10.3%
	All other	.8%	14.9%	1.8%	7.2%	2.5%	-14.1%	-1.0%	-6.4%	-1.7%
Ethnicity	Hispanic	.6%	23.6%	2.2%	1.7%	1.9%	-23.0%	-1.6%	-1.1%	-1.3%
	Not Hispanic	99.4%	76.4%	97.8%	98.3%	98.1%	23.0%	1.6%	1.1%	1.3%
Marital Status	Married	65.8%	55.3%	65.7%	62.6%	55.5%	10.5%	.1%	3.2%	10.3%
	Widowed, separated, divorced	20.3%	17.9%	15.4%	15.3%	22.1%	2.4%	4.9%	5.0%	-1.8%
	Never married	13.9%	26.8%	18.9%	22.1%	22.4%	-12.9%	-5.0%	-8.2%	-8.5%
Education	No HS diploma	6.6%	6.3%	3.8%	5.5%	8.0%	.3%	2.8%	1.1%	-1.4%
	HS graduate or equivalent	38.3%	19.3%	25.7%	23.3%	33.8%	19.0%	12.6%	15.0%	4.5%
	Some college	25.4%	33.2%	30.3%	35.2%	30.3%	-7.8%	-4.9%	-9.8%	-4.9%
	BA or above	29.6%	41.1%	40.2%	36.0%	28.0%	-11.5%	-10.6%	-6.4%	1.6%
Employment status	Working	54.7%	62.4%	67.8%	73.7%	60.2%	-7.7%	-13.1%	-19.0%	-5.5%
	Retired	28.2%	18.8%	17.8%	15.9%	21.3%	9.4%	10.4%	12.3%	6.9%
	All other	17.1%	18.8%	14.4%	10.4%	18.5%	-1.7%	2.7%	6.7%	-1.4%
Household income	Less than $25,000	22.2%	16.8%	11.9%	18.1%	21.5%	5.4%	10.3%	4.1%	.7%
	$25,000 to $39,999	22.6%	13.8%	11.6%	17.4%	17.5%	8.8%	11.0%	5.2%	5.1%

Variable	Category	State					Difference from West Virginia			
		WV	CA	NH	ND	OH	CA	NH	ND	OH
	$40,000 to $59,999	19.5%	13.5%	16.1%	17.6%	19.7%	6.0%	3.4%	1.9%	-.2%
	$60,000 to $99,999	17.3%	24.3%	28.5%	28.0%	25.3%	-7.0%	-11.2%	-10.7%	-8.0%
	$100,000 or more	18.4%	31.6%	31.9%	18.8%	16.0%	-13.2%	-13.5%	-.4%	2.4%
Household size	One person	15.6%	13.8%	10.1%	16.0%	15.7%	1.8%	5.5%	-.4%	-.1%
	Two people	47.3%	34.2%	41.3%	45.6%	38.8%	13.1%	6.0%	1.7%	8.5%
	Three people	16.4%	19.3%	18.7%	15.7%	17.2%	-2.9%	-2.3%	.7%	-.8%
	Four or more people	20.7%	32.7%	29.9%	22.8%	28.3%	-12.0%	-9.2%	-2.1%	-7.6%
Owns or is buying home	No	12.2%	32.8%	15.2%	24.4%	21.6%	-20.6%	-3.0%	-12.2%	-9.4%
	Yes	87.8%	67.2%	84.8%	75.6%	78.4%	20.6%	3.0%	12.2%	9.4%
Ever on active duty	Yes	14.2%	9.0%	11.9%	12.7%	11.0%	5.2%	2.3%	1.5%	3.2%
	No	85.8%	91.0%	88.1%	87.3%	89.0%	-5.2%	-2.3%	-1.5%	-3.2%
Metropolitan status	Metropolitan	60.2%	97.9%	62.4%	51.1%	77.5%	-37.7%	-2.2%	9.1%	-17.3%
	Not metropolitan	39.8%	2.1%	37.6%	48.9%	22.5%	37.7%	2.2%	-9.1%	17.3%
Telephone in housing unit	Yes	95.1%	96.0%	99.1%	98.8%	98.6%	-.9%	-4.0%	-3.7%	-3.5%
	No	4.9%	4.0%	.9%	1.2%	1.4%	.9%	4.0%	3.7%	3.5%
Average absolute difference							9.5%	5.9%	6.0%	5.3%
N		587	4,169	1,503	792	1,691				

NOTE: Respondents who completed the CPS November supplement have been weighted to represent within state populations in distributions of sex, age, race, ethnicity, marital status, education, employment status, household income, household size, owns or is buying home, ever on active duty, metropolitan status, and telephone in housing unit.

Table 4: Estimates of Unstandardized Ordinary Least Squares Regression Coefficients Predicting Vote Share per County in West Virginia Elections Other than Governor

Predictor	Coefficient	p-value
Candidate listed first on ballot (coded 1 if candidate was listed first and 0 if candidate was not)	2.26	.00
Candidate was a Democrat (coded 1 if candidate was a Democrat and 0 if candidate was not)	-3.94	.00
Interaction between "Candidate Listed first " and "Candidate was a Democrat"	.34	.03
Percent of the West Virginia vote received by the candidate's party in the Presidential election prior to the current election	.07	.00
Registered voters of the candidate's party as a percentage of the number of people registered to vote in the county	.30	.00
Registered voters of the other party as a percentage of the number of people registered to vote in the county	-.32	.00
Percent of the statewide vote in Ohio received by the candidate's party for all House of Representatives races in the concurrent election	.66	.00
Candidate was the incumbent	8.99	.00
Constant	12.78	.00
R^2	.61	
N	19,436	

Note: Other predictors included in the model include dummy variables for office, the number of candidates in the race, and the county in which the race was run. Statistical significance tests were computed using robust standard errors, clustered by race.

Table 5: Vote Share for Republican Presidential Candidates in West Virginia and Ohio from 1960 – 2016

Year	Republican Vote Share West Virginia	Republican Vote Share Ohio
1960	47.3%	53.3%
1964	32.1%	37.1%
1968	40.8%	45.2%
1972	63.6%	59.6%
1976	41.9%	48.7%
1980	45.3%	51.5%
1984	55.1%	58.9%
1988	47.5%	55.0%
1992	35.4%	38.3%
1996	36.8%	41.0%
2000	51.9%	50.0%
2004	56.1%	50.8%
2008	55.7%	46.9%
2012	62.3%	47.7%
2016	68.6%	51.7%

Table 6: Estimates of Unstandardized Ordinary Least Squares Regression Coefficients Predicting Vote Share per County in West Virginia Gubernatorial Elections

Predictor	Coefficient	p-value
Candidate listed first on ballot (coded 1 if candidate was listed first and 0 if candidate was not)	-11.12	.00
Candidate was a Democrat (coded 1 if candidate was a Democrat and 0 if candidate was not)	-1.98	.02
Interaction between "Candidate Listed first " and "Candidate was a Democrat"	-.41	.28
Percent of the West Virginia vote received by the candidate's party in the Presidential election prior to the current election	.13	.01
Registered voters of the candidate's party as a percentage of the number of people registered to vote in the county	.47	.00
Registered voters of the other party as a percentage of the number of people registered to vote in the county	-.10	.00
Percent of the statewide vote in Ohio received by the candidate's party for all House of Representatives races in the concurrent election	.89	.00
Candidate was the incumbent	3.88	.00
Constant	-13.34	.01
R^2	.69	
N	1,760	

Note: Other predictors included in the equation include dummy variables for the number of candidates in the race and for the county in which the race was run. Statistical significance tests were computed using robust standard errors, clustered by race.

Table 7: Estimates of Unstandardized Ordinary Least Squares Regression Coefficients Predicting Vote Share per County in West Virginia Gubernatorial Elections, Controlling for Unemployment and Gubernatorial Incumbency

Predictor	Coefficient	p-value
Candidate listed first on ballot (coded 1 if candidate was listed first and 0 if candidate was not)	-2.74	.03
Candidate was a Democrat (coded 1 if candidate was a Democrat and 0 if candidate was not)	-1.72	.04
Interaction between "Candidate Listed first " and "Candidate was a Democrat"	-1.50	.00
Percent of the West Virginia vote received by the candidate's party in the Presidential election prior to the current election	-.14	.01
Registered voters of the candidate's party as a percentage of the number of people registered to vote in the county	.47	.00
Registered voters of the other party as a percentage of the number of people registered to vote in the county	-.11	.00
Percent of the statewide vote in Ohio received by the candidate's party for all House of Representatives races in the concurrent election	.99	.00
Candidate was the incumbent (coded 1 if the candidate held the office at the time of the election and 0 if candidate did not)	3.06	.00
Candidate shares party with incumbent governor (coded 1 if candidate was of same party as incumbent governor, 0 otherwise)	1.01	.06
Unemployment rate in West Virginia (measured as deviation from mean during all WVA general election years 1960-2018)	1.20	.00
Interaction between "Candidate shares party with incumbent governor" and "Unemployment rate in West Virginia"	-2.40	.00
Constant	-8.32	.09
R^2	.72	
N	1,760	

Note: Other predictors included in the equation include dummy variables for the number of candidates in the race and for the county in which the race was run. Statistical significance tests were computed using robust standard errors, clustered by race.

Table 8: West Virginia Races That Could Have Had a Different Outcome If Name Order Had Been Reversed

Race	Year	Party of Victor	Margin of Victory
Attorney General	1968	Democrat	4.46
Attorney General	1972	Democrat	.28
Attorney General	1992	Democrat	3.14
Attorney General	1996	Democrat	2.15
Attorney General	2012	Republican	2.49
Circuit Judge	1960	Republican	3.91
Circuit Judge	1968	Democrat	1.82
Circuit Judge	1968	Democrat	.03
Circuit Judge	1972	Democrat	1.95
Circuit Judge	1976	Republican	4.43
Circuit Judge	1984	Democrat	3.87
Circuit Judge	1988	Republican	1.12
Circuit Judge	1992	Democrat	3.47
Circuit Judge	1998	Democrat	.56
Circuit Judge	2000	Democrat	3.08
Circuit Judge	2008	Republican	1.80
Circuit Judge	2010	Republican	2.57
Commissioner of Agriculture	1988	Republican	3.81
Secretary of State	1966	Democrat	2.00
Secretary of State	2004	Republican	3.77
Secretary of State	2016	Republican	1.70
U.S. House of Representatives	1990	Democrat	3.90
U.S. House of Representatives	2010	Republican	.80
U.S. House of Representatives	2014	Republican	3.20
U.S. President	1980	Democrat	4.51
U.S. Senate	1978	Democrat	.96
West Virginia House of Delegates	1962	Democrat	3.67
West Virginia House of Delegates	1962	Democrat	.69
West Virginia House of Delegates	1962	Democrat	.21
West Virginia House of Delegates	1962	Democrat	3.80
West Virginia House of Delegates	1962	Democrat	3.28
West Virginia House of Delegates	1964	Democrat	1.64
West Virginia House of Delegates	1964	Democrat	.53
West Virginia House of Delegates	1964	Democrat	1.99
West Virginia House of Delegates	1966	Democrat	.10
West Virginia House of Delegates	1966	Democrat	.18
West Virginia House of Delegates	1966	Democrat	3.50
West Virginia House of Delegates	1968	Democrat	4.22
West Virginia House of Delegates	1970	Democrat	3.29
West Virginia House of Delegates	1970	Democrat	4.70
West Virginia House of Delegates	1972	Democrat	3.52
West Virginia House of Delegates	1972	Democrat	.11
West Virginia House of Delegates	1972	Democrat	2.14
West Virginia House of Delegates	1978	Democrat	.99
West Virginia House of Delegates	1982	Democrat	4.43

Race	Year	Party of Victor	Margin of Victory
West Virginia House of Delegates	1982	Democrat	3.82
West Virginia House of Delegates	1986	Republican	4.58
West Virginia House of Delegates	1988	Republican	4.21
West Virginia House of Delegates	1992	Democrat	3.56
West Virginia House of Delegates	1992	Democrat	1.83
West Virginia House of Delegates	1992	Democrat	3.94
West Virginia House of Delegates	1998	Democrat	2.24
West Virginia House of Delegates	2000	Democrat	.55
West Virginia House of Delegates	2004	Republican	2.30
West Virginia House of Delegates	2010	Republican	1.84
West Virginia House of Delegates	2012	Republican	4.49
West Virginia House of Delegates	2012	Republican	2.42
West Virginia House of Delegates	2012	Republican	2.47
West Virginia House of Delegates	2014	Republican	4.33
West Virginia House of Delegates	2016	Republican	3.95
West Virginia House of Delegates	2016	Republican	4.42
West Virginia House of Delegates	2016	Republican	1.97
West Virginia House of Delegates	2016	Republican	4.10
West Virginia House of Delegates	2016	Republican	1.15
West Virginia House of Delegates	2018	Republican	4.67
West Virginia State Senate	1960	Republican	4.50
West Virginia State Senate	1960	Republican	2.61
West Virginia State Senate	1964	Democrat	1.49
West Virginia State Senate	1964	Democrat	2.57
West Virginia State Senate	1964	Democrat	4.69
West Virginia State Senate	1966	Democrat	.85
West Virginia State Senate	1968	Democrat	4.07
West Virginia State Senate	1968	Democrat	1.60
West Virginia State Senate	1970	Democrat	.47
West Virginia State Senate	1972	Democrat	1.32
West Virginia State Senate	1976	Republican	.77
West Virginia State Senate	1976	Republican	3.66
West Virginia State Senate	1978	Democrat	3.64
West Virginia State Senate	1980	Democrat	2.53
West Virginia State Senate	1982	Democrat	1.93
West Virginia State Senate	1982	Democrat	2.93
West Virginia State Senate	1984	Democrat	3.60
West Virginia State Senate	1984	Democrat	.97
West Virginia State Senate	1986	Republican	1.05
West Virginia State Senate	1986	Republican	2.19
West Virginia State Senate	1990	Democrat	1.44
West Virginia State Senate	1990	Democrat	2.97
West Virginia State Senate	1994	Democrat	.63
West Virginia State Senate	1994	Democrat	3.88
West Virginia State Senate	1996	Democrat	2.05
West Virginia State Senate	1998	Democrat	1.20
West Virginia State Senate	2000	Democrat	1.22

Race	Year	Party of Victor	Margin of Victory
West Virginia State Senate	2002	Republican	3.32
West Virginia State Senate	2004	Republican	1.90
West Virginia State Senate	2004	Republican	.76
West Virginia State Senate	2006	Republican	3.88
West Virginia State Senate	2006	Republican	2.31
West Virginia State Senate	2014	Republican	3.54
West Virginia State Senate	2014	Republican	2.59
West Virginia State Senate	2014	Republican	1.64
West Virginia State Senate	2016	Republican	2.14
West Virginia State Senate	2016	Republican	2.11
West Virginia State Senate	2016	Republican	3.61
West Virginia State Senate	2016	Republican	2.14
U.S. Senate	1984	Democrat	4.09

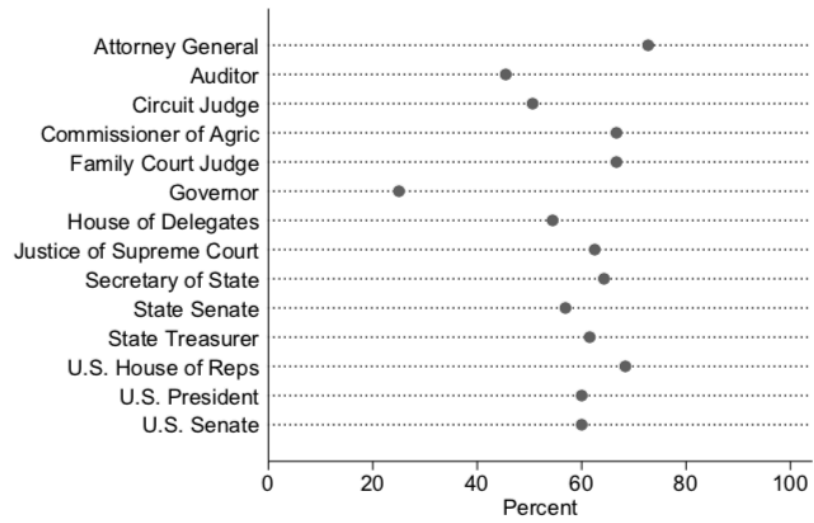**Figure 1: Percent of Contests Won by the First-Listed Candidate**

Figure 2: Difference between Republican and Democratic Vote Share – National Vote
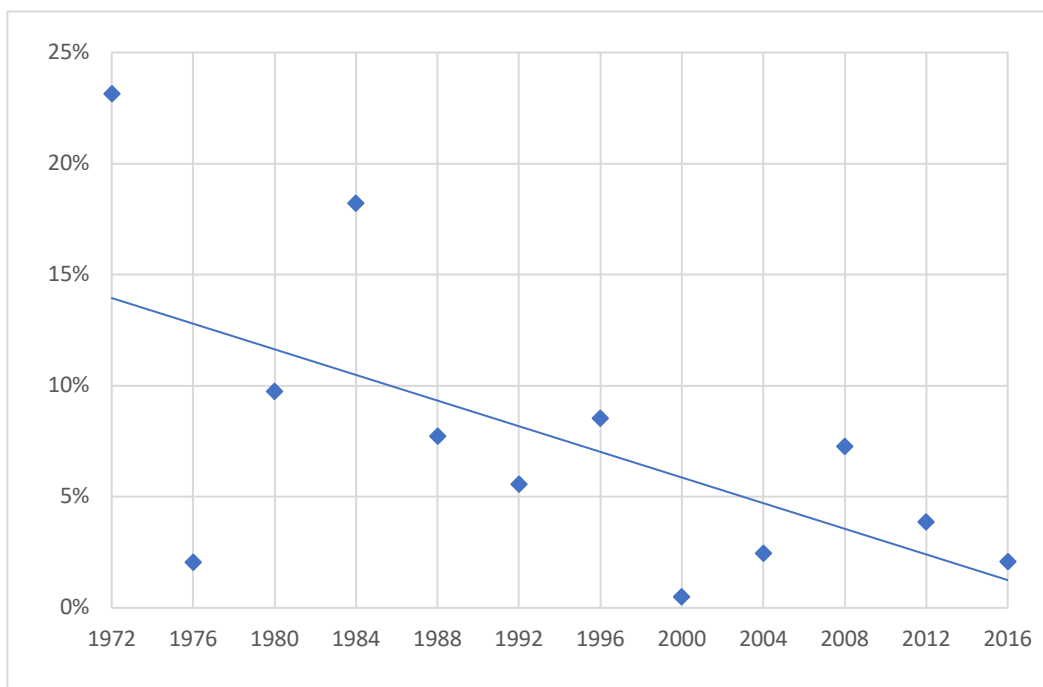
Figure 3: Number of Elections in which the First-Listed Candidate Won by Margin of Victory (1960-2018)